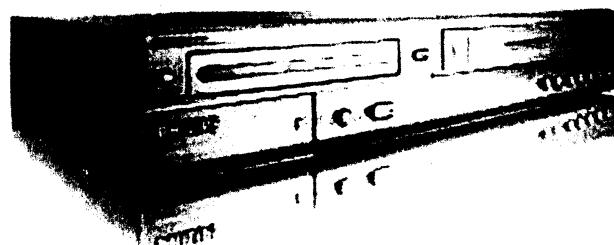


Service
Service
Service



Service Manual

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PHILIPS

SECTION 1

SUMMARY

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PRODUCT SAFETY SERVICING GUIDELINES FOR VIDEO PRODUCTS

IMPORTANT SAFETY NOTICE

This manual was prepared for use only by properly trained audio-video service technicians.

When servicing this product, under no circumstances should the original design be modified or altered without permission from PHILIPS Electronics Corporation. All components should be replaced only with types identical to those in the original circuit and their physical location, wiring and lead dress must conform to original layout upon completion.

Special components are also used to prevent x-radiation, shock and fire hazard. These components are indicated by the letter "X" included in their component designators and are required to maintain safe performance. No deviations are allowed without prior approval by PHILIPS Electronics Corporation.

Circuit diagrams may occasionally differ from the actual circuit used. This way, implementation of the latest safety and performance improvement changes into the set is not delayed until the new service literature is printed.

CAUTION: Do not attempt to modify this product in any way. Never perform customized installations without manufacturer's approval. Unauthorized modifications will not only void the warranty, but may lead to property damage or user injury.

Service work should be performed only after you are thoroughly familiar with these safety checks and servicing guidelines.

GRAPHIC SYMBOLS



The exclamation point within an equilateral triangle is intended to alert the service personnel to important safety information in the service literature.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the service personnel to the presence of noninsulated "dangerous voltage" that may be of sufficient magnitude to constitute a risk of electric shock.



The pictorial representation of a fuse and its rating within an equilateral triangle is intended to convey to the service personnel the following fuse replacement caution notice:

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ALL FUSES WITH THE SAME TYPE AND RATING AS MARKED NEAR EACH FUSE.

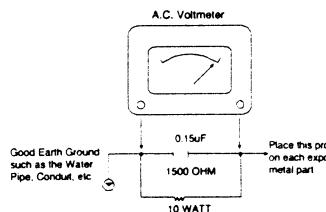
SERVICE INFORMATION

While servicing, use an isolation transformer for protection from AC line shock. After the original service problem has been corrected, make a check of the following:

FIRE AND SHOCK HAZARD

1. Be sure that all components are positioned to avoid a possibility of adjacent component shorts. This is especially important on items transported to and from the repair shop.
2. Verify that all protective devices such as insulators, barriers, covers, shields, strain reliefs, power supply cords, and other hardware have been reinstalled per the original design. Be sure that the safety purpose of the polarized line plug has not been defeated.
3. Soldering must be inspected to discover possible cold solder joints, solder splashes, or sharp solder points. Be certain to remove all loose foreign particles.
4. Check for physical evidence of damage or deterioration to parts and components, for frayed leads or damaged insulation (including the AC cord), and replace if necessary.
5. No lead or component should touch a high current device or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces must be avoided.

6. After reassembly of the set, always perform an AC leakage test on all exposed metallic parts of the cabinet (the channel selector knobs, antenna terminals, handle and screws) to be sure that set is safe to operate without danger of electrical shock. DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST. Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner: Connect a 1500 ohm, 10 watt resistor, paralleled by a .15 mfd 150V AC type capacitor between a known good earth ground water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and .15 mfd capacitor. Reverse the AC plug by using a non-polarized adapter and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75 volts RMS. This corresponds to 0.5 millamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



TIPS ON PROPER INSTALLATION

1. Never install any receiver in a closed-in recess, cubbyhole, or closely fitting shelf space over, or close to, a heat duct, or in the path of heated air flow.
2. Avoid conditions of high humidity such as: outdoor patio installations where dew is a factor, near steam radiators where steam leakage is a factor, etc.
3. Avoid placement where draperies may obstruct venting. The customer should also avoid the use of decorative scarves or other coverings that might obstruct ventilation.
4. Wall- and shelf-mounted installations using a commercial mounting kit must follow the factory-approved mounting instructions. A product mounted to a shelf or platform must retain its original feet (or the equivalent thickness in spacers) to provide adequate air flow across the bottom. Bolts or screws used for fasteners must not touch any parts or wiring. Perform leakage tests on customized installations.
5. Caution customers against mounting a product on a sloping shelf or in a tilted position, unless the receiver is properly secured.
6. A product on a roll-about cart should be stable in its mounting to the cart. Caution the customer on the hazards of trying to roll a cart with small casters across thresholds or deep pile carpets.
7. Caution customers against using extension cords. Explain that a forest of extensions, sprouting from a single outlet, can lead to disastrous consequences to home and family.

SERVICING PRECAUTIONS

CAUTION: Before servicing the VCR + DVD RECORDER covered by this service data and its supplements and addends, read and follow the SAFETY PRECAUTIONS. NOTE: if unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publications, always follow the safety precautions.

Remember Safety First:

General Servicing Precautions

1. Always unplug the VCR + DVD RECORDER AC power cord from the AC power source before:
 - (1) Removing or reinstalling any component, circuit board, module, or any other assembly.
 - (2) Disconnecting or reconnecting any internal electrical plug or other electrical connection.
 - (3) Connecting a test substitute in parallel with an electrolytic capacitor.
- Caution:** A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Do not spray chemicals on or near this VCR + DVD RECORDER or any of its assemblies.
3. Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cotton-tipped swab, or comparable soft applicator. Unless specified otherwise in this service data, lubrication of contacts is not required.
4. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.
5. Do not apply AC power to this VCR + DVD RECORDER and / or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
6. Always connect the test instrument ground lead to an appropriate ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.

Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter (500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1M ohm.

Note 1: Accessible Conductive Parts include Metal panels, Input terminals, Earphone jacks,etc.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor chip components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate an electrical charge sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Normally harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

INFORMATION ABOUT LEAD-FREE SOLDERING

Philips CE is producing lead-free sets from 1.1.2005 onwards.

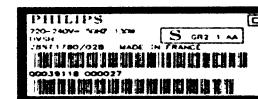
IDENTIFICATION:

Regardless of special logo (not always indicated)



one must treat all sets from 1 Jan 2005 onwards, according next rules:

Example S/N:



Bottom line of typeplate gives a 14-digit S/N. Digit 5&6 is the year, digit 7&8 is the week number, so in this case 1991 wk 18

So from 0501 onwards = from 1 Jan 2005 onwards

Important note: In fact also products of year 2004 must be treated in this way as long as you avoid mixing solder-alloys (leaded/ lead-free). So best to always use SAC305 and the higher temperatures belong to this.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

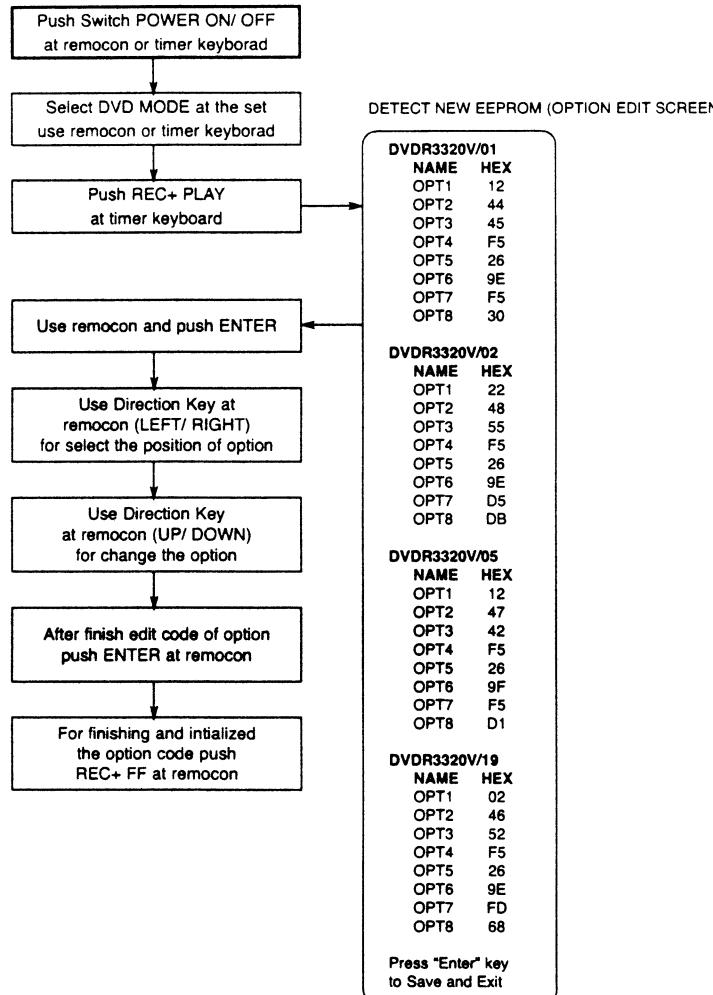
- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
 - To reach at least a solder-temperature of 400°C,
 - To stabilize the adjusted temperature at the solder-tip
 - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C – 380°C is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off un-used equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed solder alloy types (leaded and lead-free). If one cannot avoid or does not know whether product is lead-free, clean carefully the solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has to be purchased at external companies.
- Special information for BGA-ICs:
 - always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use the lead-free temperature profile, in case of doubt)
 - lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website.
Do not re-use BGAs at all.
- For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.
- On our website www.ayourservice.ce.Philips.com you find more information to:
 - BGA-de-/soldering (+ baking instructions)
 - Heating-profiles of BGAs and other ICs used in Philips-sets

You will find this and more technical information within the "magazine", chapter "workshop news".

For additional questions please contact your local repair-helpdesk.

THE STEPS FOR CHANGE THE OPTION CODE

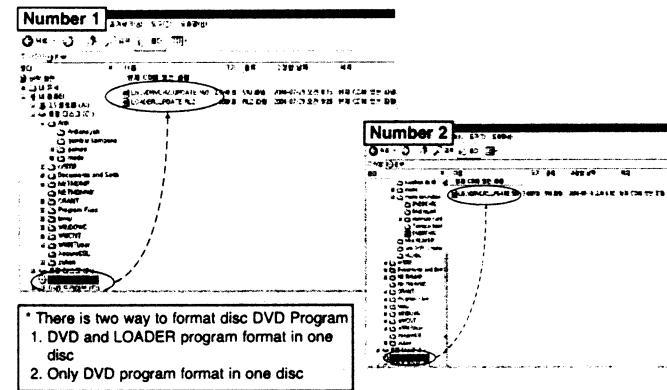
Note : This procedure must be done when IC304(On digital Board) or Digital Boardassy



UP-DATING PROGRAM

BURNING DISC

- For up-dating the DVD program using the disc, it must burning the disc which include the DVD software.
- For recorder combi set which using the disc downloader program are DVD Program and Loader Program.
- In 2nd generation for recorder combi can download the DVD program and Loader program one by one, or all together.



- If you format like number 1 you'll see capture like (figure 1)
- And you have three choice:
 1. Main. It's mean if you chose this it'll up-dating only DVD prgram.
 2. Loader. It's mean if you chose this it'll up-dating only Loader program.
 3. ALL. It's mean if you chose this it'll up-dating DVD and Loader program.



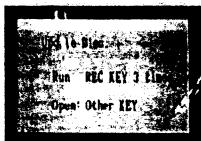
- If you format like number 2 you'll not see capture like figure 1 that give you choices, you have no choice only update DVD program

SPECIFICATIONS

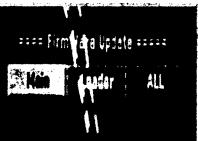
DVD UPGRADE INSTRUCTION

FORMAT NO 1

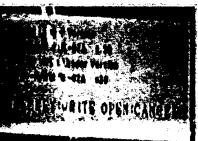
1. Press POWER KEY to turn on.
2. After booting, insert the upgrade disc, and you will see message like [FIGURE 1]
3. Press "REC" key (front or remote) 3 times and you will see as [FIGURE 2] with remote Chose one of them then Press enter.
4. For update both of them [MAIN & LOADER] we chose "ALL" and first you will see [FIGURE 3] DVD update
→ Check the "Current Version" and "New CD Write Version" and press "REC" key.
5. The DVD update will be on progress. And when finish update MAIN Version it's automatically continue to Update Loader Version and You will see [FIGURE 4]
→ Check the "Current Version" and "New CD Write Version" and Press "REC" key once more
6. The LOADER update will be on progress. And tray will open.
7. Remove the disc and wait until finish
8. The tray will be close and open automatically after completing "UNDER UPDATE" 100%
9. Turn off the unit
10. Turn on again the unit is operation with new software



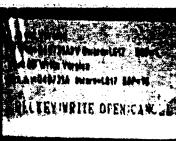
[FIGURE 1]



[FIGURE 2]



[FIGURE 3]



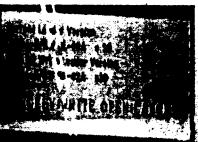
[FIGURE 4]

FORMAT NO 2

1. Press POWER KEY to turn on.
2. After booting, insert the upgrade disc, and you will see message like [FIGURE 1]
3. Press "REC" key (front or remote) 3 times
4. The DVD update will be on progress.
→ Check the "Current Version" and "New CD Write Version" and Press "REC" key once more
5. The tray will be open automatically after completing "UNDER UPDATE" 100%
6. Remove the disc and Turn off the unit
7. Turn on again the unit is operation with new software



[FIGURE 1]



[FIGURE 2]

General	
Power requirements	AC 220-230V, 50 Hz
Power consumption	35W
Dimensions (approx.)	430 X 78.5 X 354 mm (w x h x d)
Mass (approx.)	5.7 kg
Operating temperature	5°C to 35°C
Operating humidity	5 % to 90 %
Television system	PAL B/G, PAL I/I, SECAM D/K color system
Recording format	PAL
System	
Laser	Semiconductor laser, wavelength 650 nm
Video head system	Double azimuth 4 heads, helical scanning
Signal system	PAL
Recording	
Recording format	DVD+RW/+R Video format
Recordable discs	DVD-ReWritable, DVD-Recordable, DVD+ReWritable, DVD+Recordable
Recordable time	Approx. 1 hour (XP mode), 2 hours (SP mode), 4 hours (LP mode), 6 hours (EP mode)
Video recording format	
Sampling frequency	27MHz
Compression format	MPEG 2
Audio recording format	
Sampling frequency	48kHz
Compression format	Dolby Digital
Playback	
Frequency response	DVD (PCM 48 kHz): 8 Hz to 22 kHz, CD: 8 Hz to 20 kHz DVD (PCM 96 kHz): 8 Hz to 44 kHz
Harmonic distortion	Less than 0.008% (AUDIO OUT connector)
Dynamic range	More than 95 dB (AUDIO OUT connector)
Inputs	
AERIAL IN	Aerial input, 75 ohms
VIDEO IN	1.0 Vp-p 75 ohms, sync negative, RCA jack x 1 / SCART x 2
AUDIO IN	0 dBm more than 47 kohms, RCA jack (L, R) x 1 / SCART x 2
DV IN	4 pin IEEE 1394 standard
S-VIDEO IN	(Y) 1.0 V (p-p), 75 Ω, negative sync, Mini DIN 4-pin x 1 (C) 0.3 V (p-p) 75 Ω
Outputs	
S-VIDEO OUT	(Y) 1.0 V (p-p), 75 Ω, negative sync, Mini DIN 4-pin x 1 (C) 0.3 V (p-p) 75 Ω
COMPONENT VIDEO OUT	(Y) 1.0 V (p-p), 75 Ω, negative sync, RCA jack x 1 (Pb)/(Pr) 0.7 V (p-p), 75 Ω, RCA jack x 2
Audio output (digital audio)	0.5 V (p-p), 75 Ω, RCA jack x 1
Audio output (analog audio)	2.0 Vrms (1 kHz, 0 dB), 600 Ω, RCA jack (L, R) x 1 / SCART

* Design and specifications are subject to change without notice.

* Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories.

* DTS and DTS Digital Out are registered trademarks of Digital Theater Systems, Inc.

SECTION 2

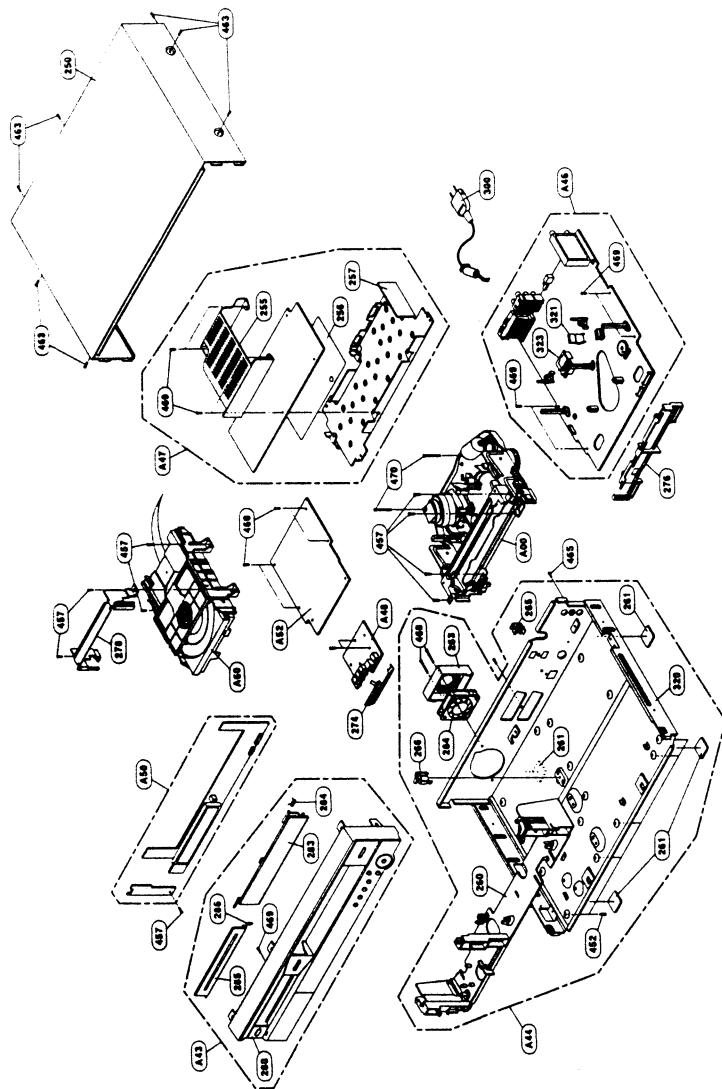
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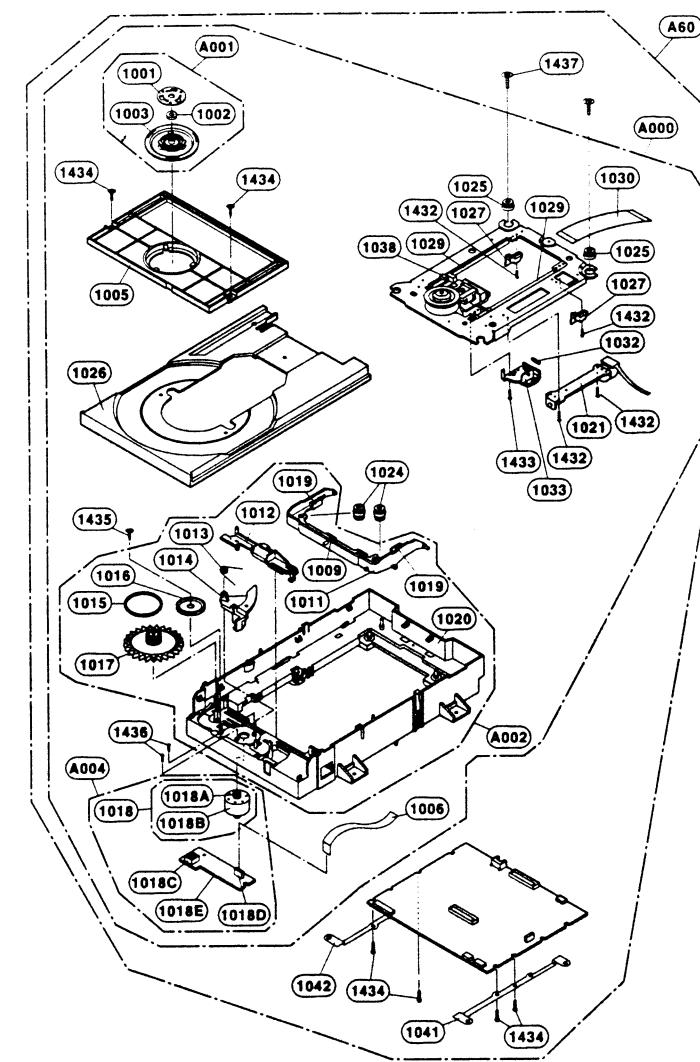
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EXPLODED VIEWS

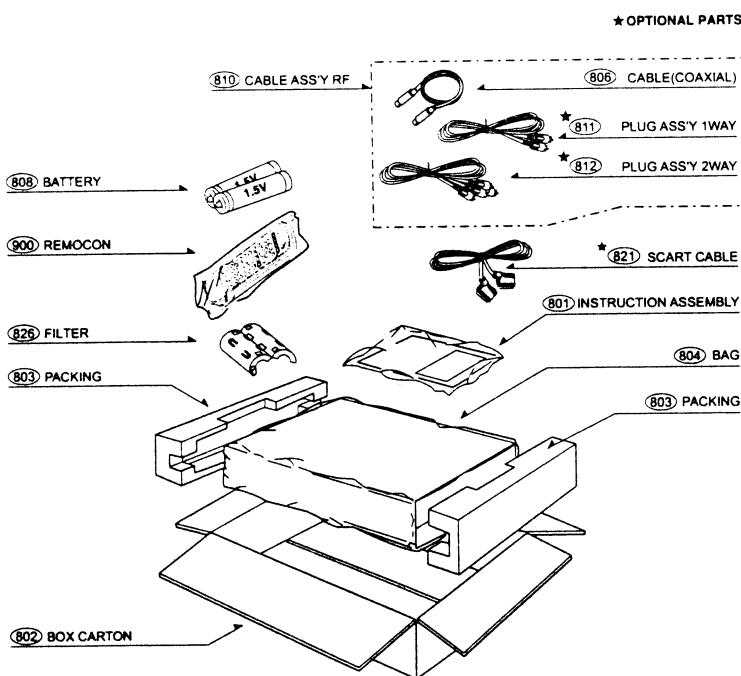
1. Cabinet and Main Frame Section



2. Deck Mechanism Section (RL-05) - For information only



3. Packing Accessory Section



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VCR PART

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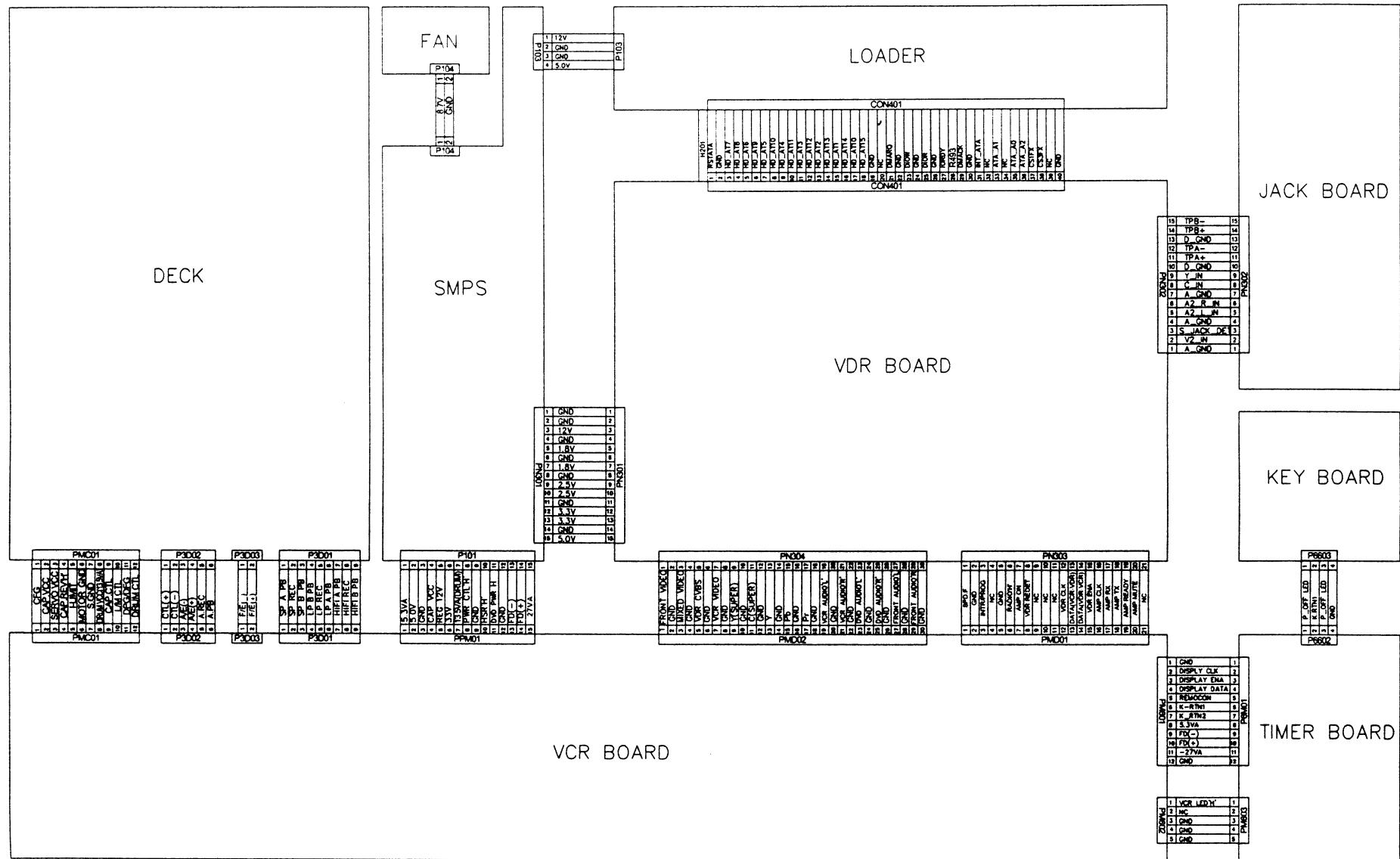
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OVERALL WIRING DIAGRAMS



VCR PART ELECTRICAL ADJUSTMENT PROCEDURES

1. Servo Adjustment

1) PG Adjustment

- Test Equipment
 - a) OSCILLOSCOPE : PAL SP TEST TAPE

- Adjustment And Specification

MODE	MEASUREMENT POINT	ADJUSTMENT POINT	SPECIFICATION
PLAY	V.Out H/SW(TP)	R/C TRK JIG KEY	$6.5 \pm 0.5H$

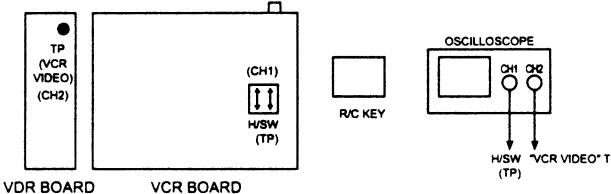
- Adjustment Procedure

- Insert the SP Test Tape and play.
- Connect the CH1 of the oscilloscope to the H/SW and CH2 to the "VCR VIDEO" TP for the VCR.
- Trigger the mixed Combo Video Signal of CH2 to the CH1 H/SW, and then check the distance (time difference), which is from the selected A(B) Head point of the H/SW signal to the starting point of the vertical synchronized signal, to $6.5H \pm 0.5H$ ($416\mu s$, $1H=64\mu s$).

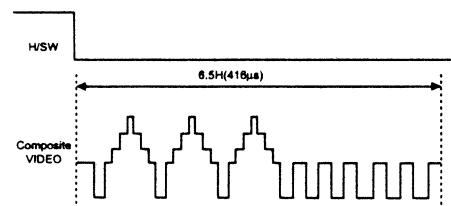
- PG Adjustment Method

- Playback the SP standard tape
- Wait for 3seconds with F/P "REC" key and "PLAY" key pressed at the same time. < Digitron[- -] >
- Repeat the above step(No.b-2), then it finishes the PG adjusting automatically. < Digitron[PG] >
- Stop the playback, then it goes out of PG adjusting mode after many the PG data.

- CONNECTION

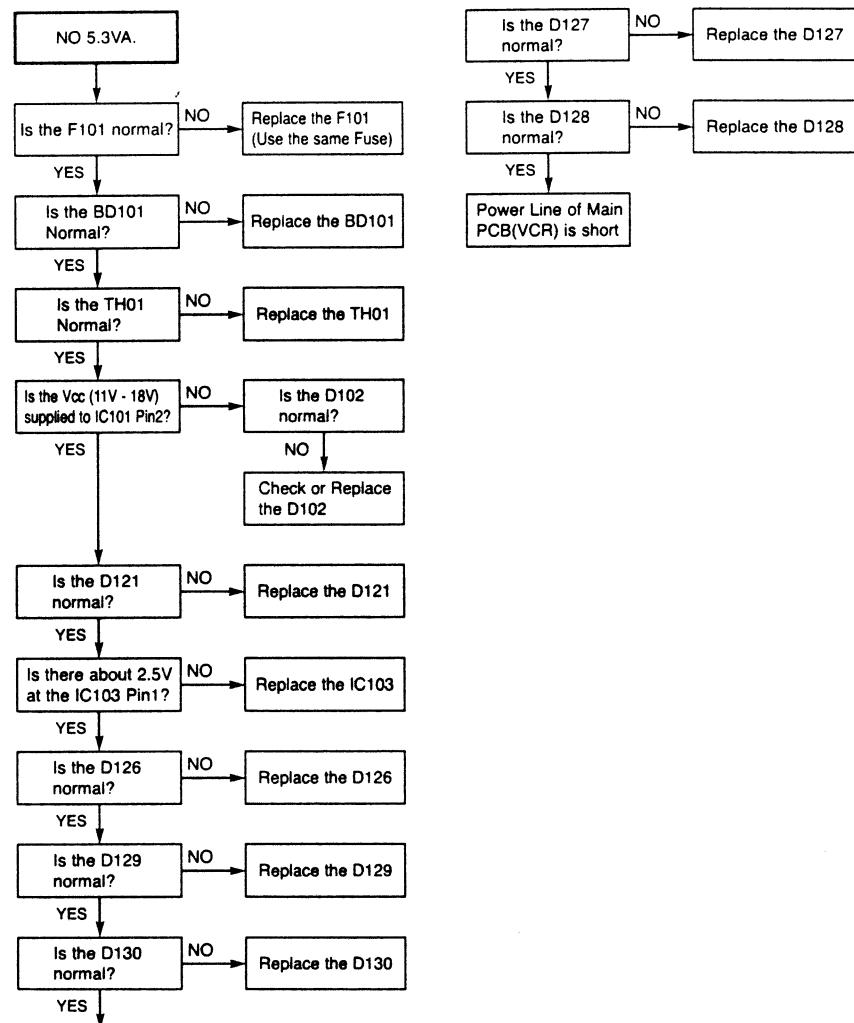


- WAVEFORM

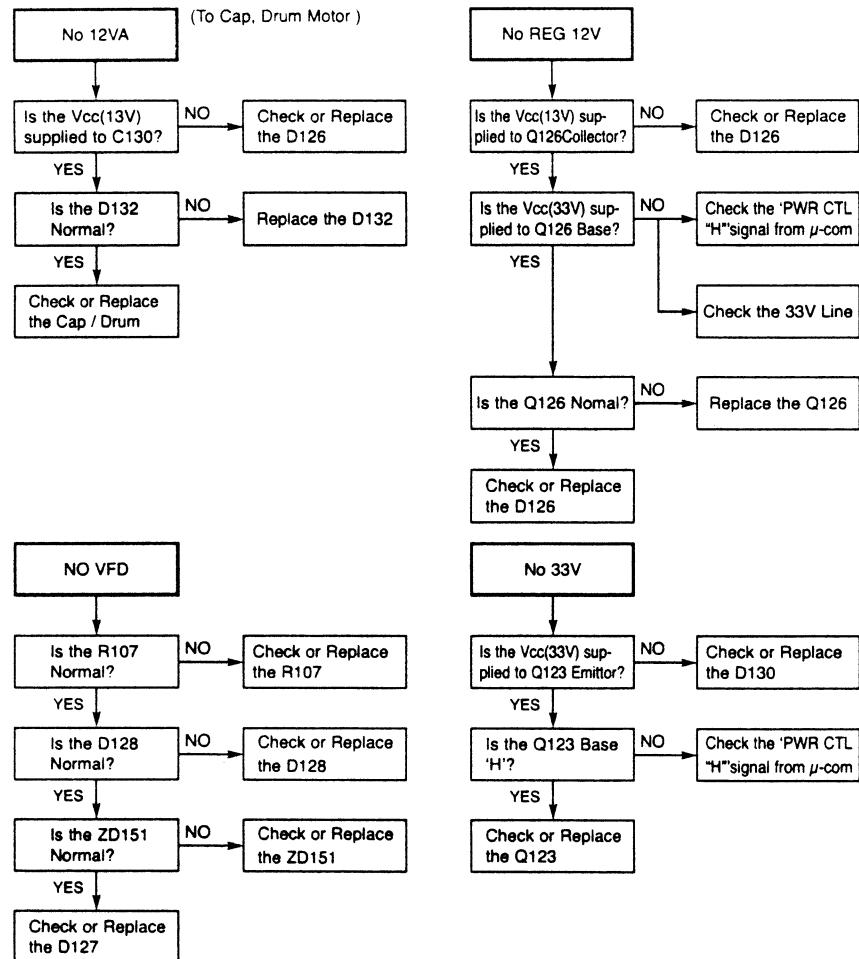


VCR ELECTRICAL TROUBLESHOOTING GUIDE

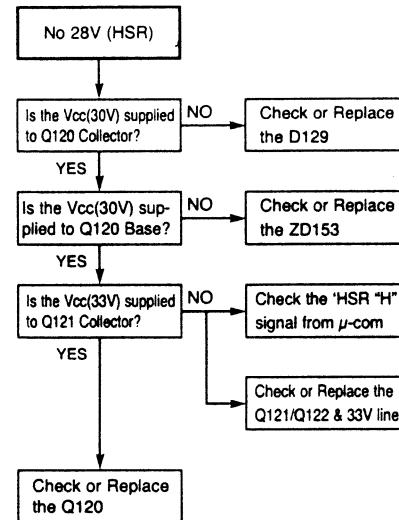
1. Power(SMPS) CIRCUIT



VCR ELECTRICAL TROUBLESHOOTING GUIDE



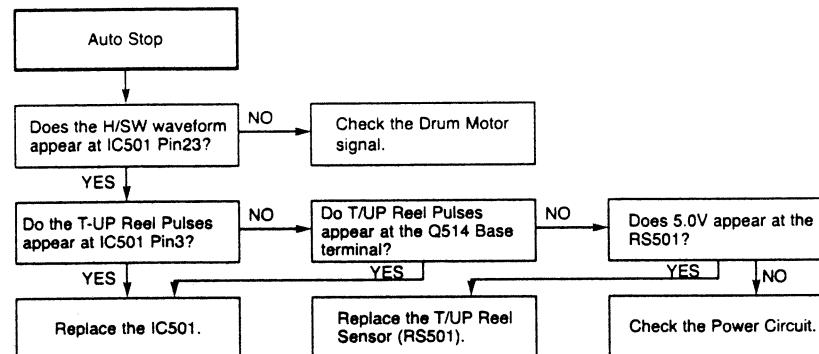
VCR ELECTRICAL TROUBLESHOOTING GUIDE



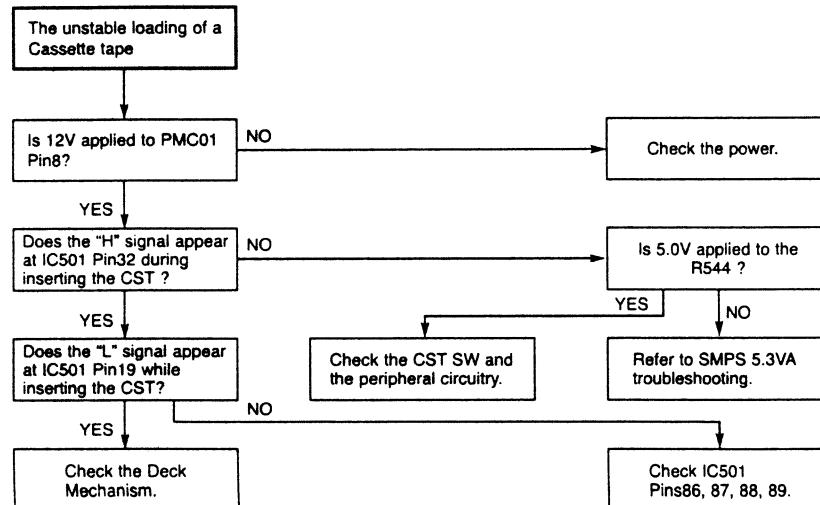
VCR ELECTRICAL TROUBLESHOOTING GUIDE

2. SYSTEM/KEY CIRCUIT

(1) AUTO STOP



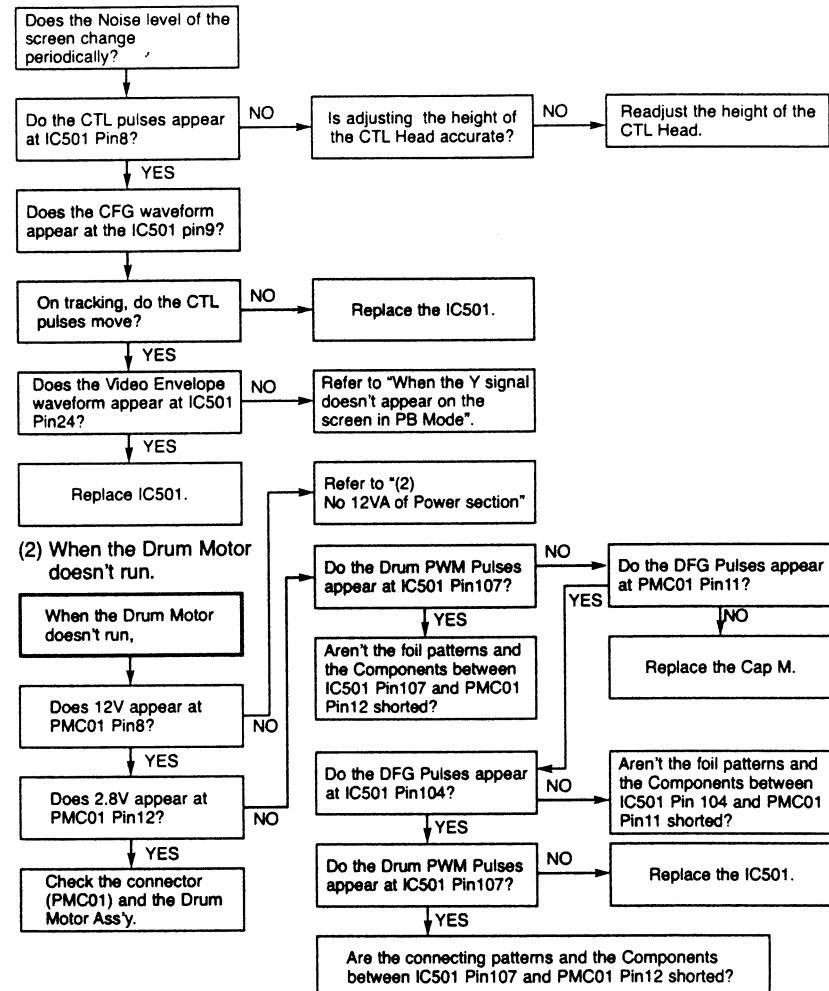
(2) The unstable loading of a Cassette tape



VCR ELECTRICAL TROUBLESHOOTING GUIDE

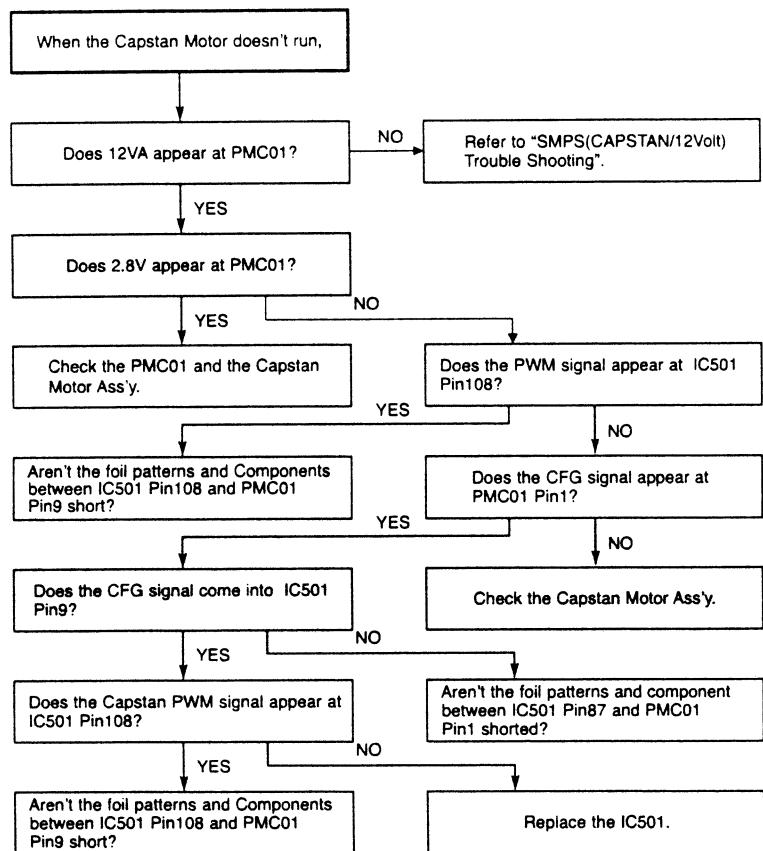
3. SERVO CIRCUIT

(1) Unstable Video in PB MODE



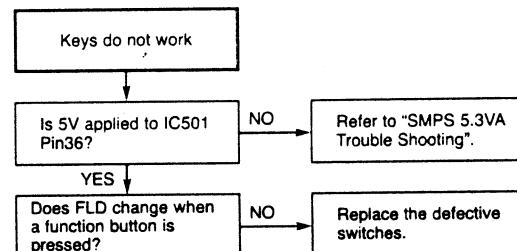
VCR ELECTRICAL TROUBLESHOOTING GUIDE

(3) When the Capstan Motor doesn't run,



VCR ELECTRICAL TROUBLESHOOTING GUIDE

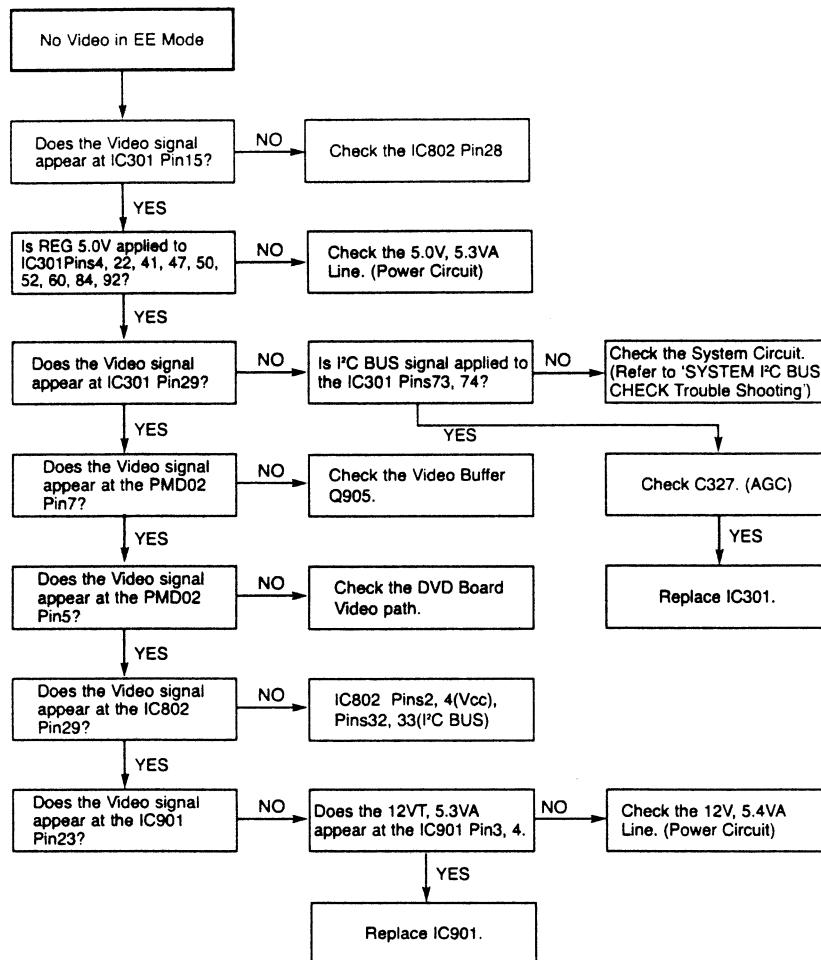
(4) Keys do not work



VCR ELECTRICAL TROUBLESHOOTING GUIDE

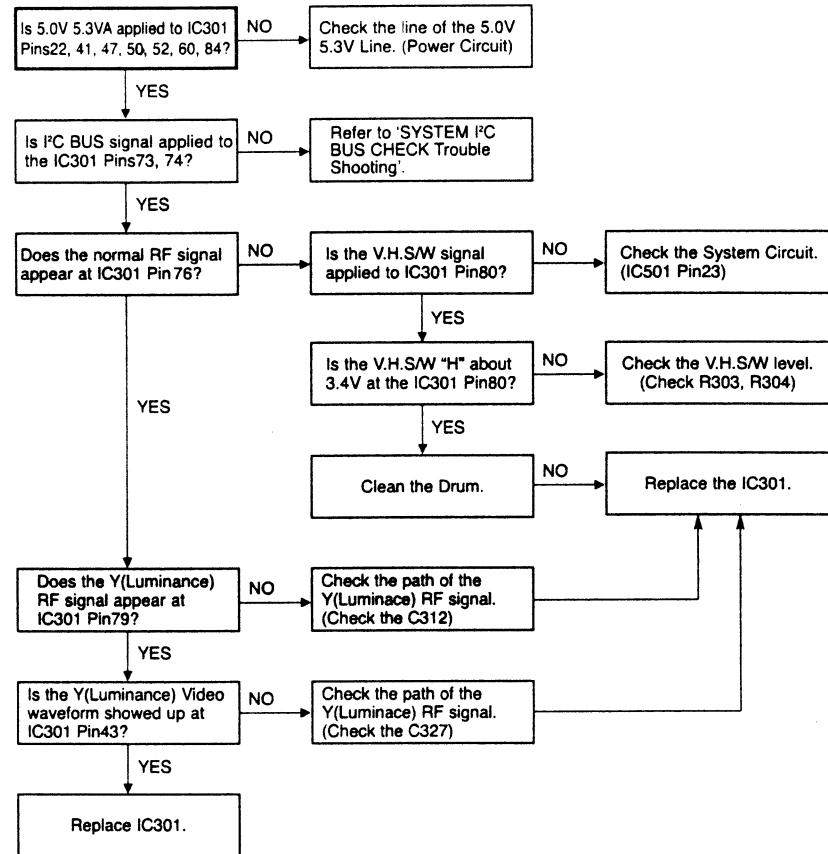
4. Y/C CIRCUIT

(1) No Video in EE Mode,



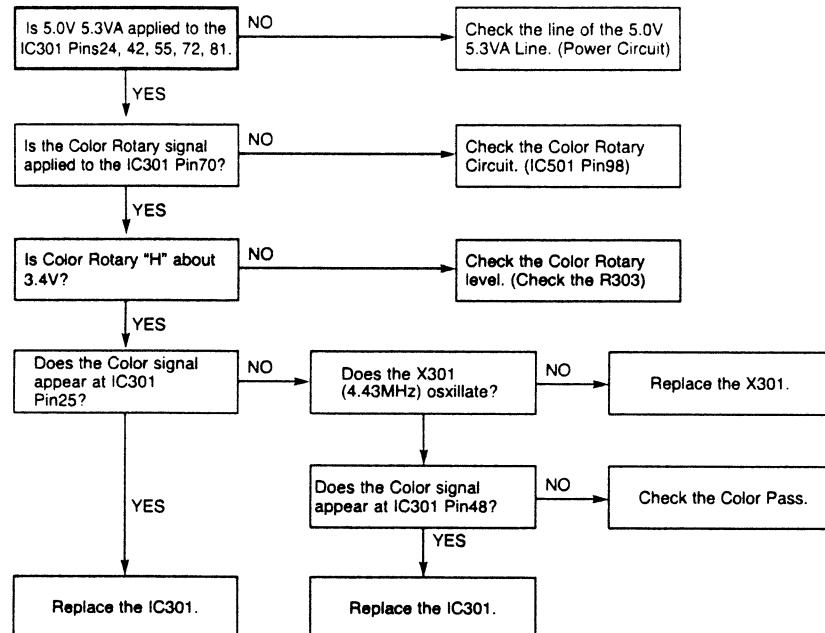
VCR ELECTRICAL TROUBLESHOOTING GUIDE

(2) When the Y(Luminance) signal doesn't appear on the screen in PB Mode,



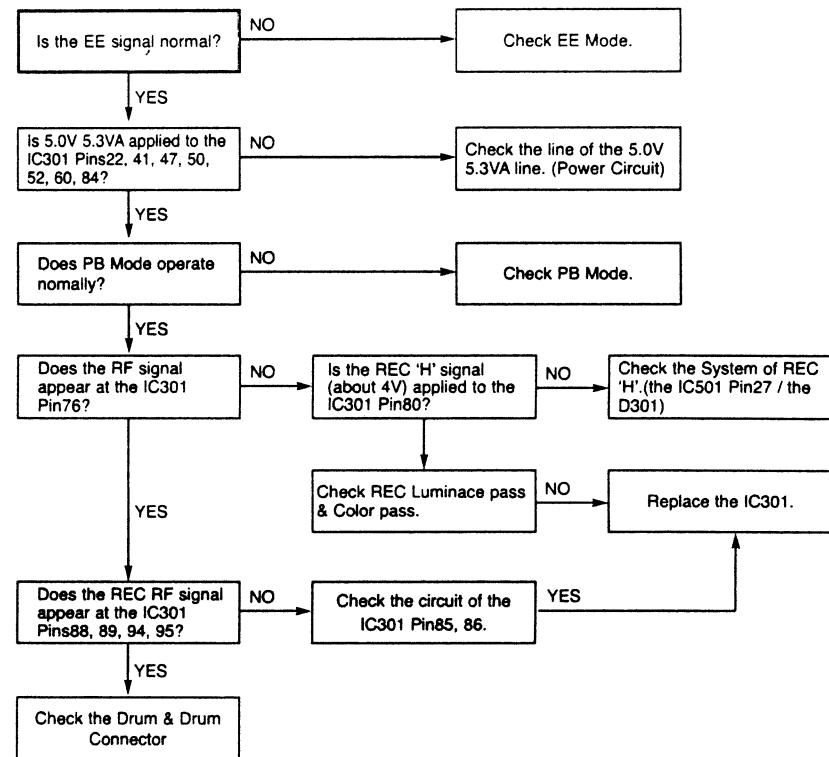
VCR ELECTRICAL TROUBLESHOOTING GUIDE

(3) When the C(Color) signal doesn't appear on the screen in PB Mode,



VCR ELECTRICAL TROUBLESHOOTING GUIDE

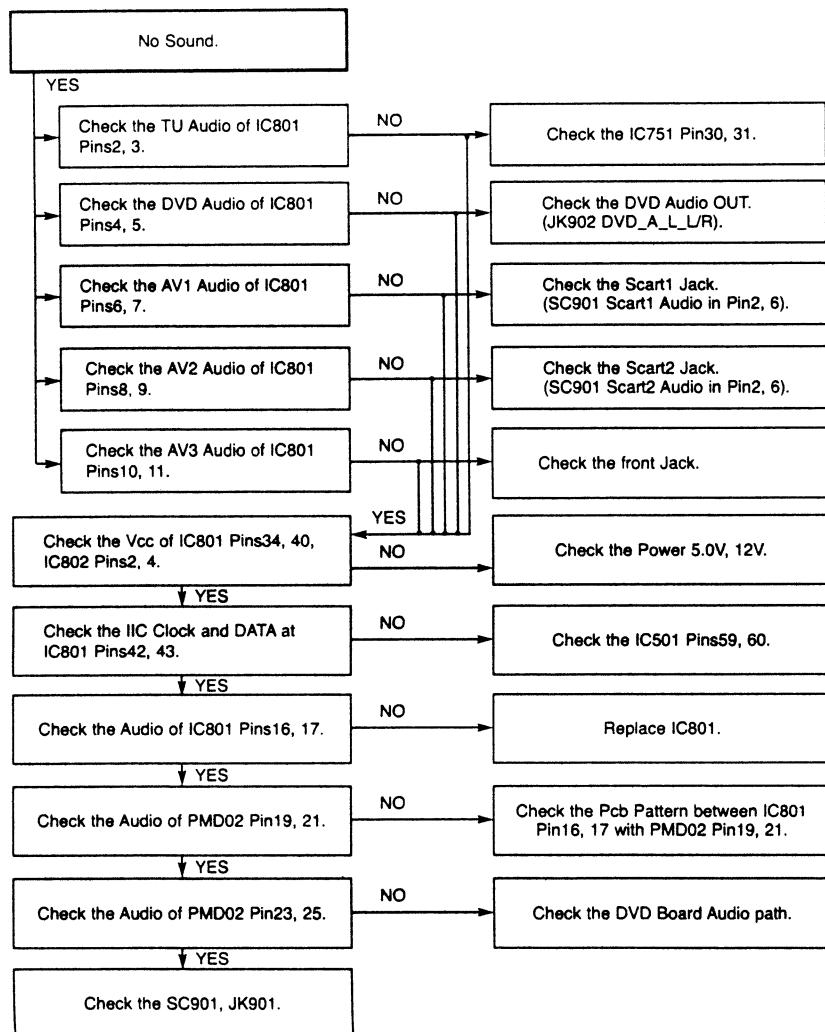
(4) When the Video signal doesn't appear on the screen in REC Mode,



VCR ELECTRICAL TROUBLESHOOTING GUIDE

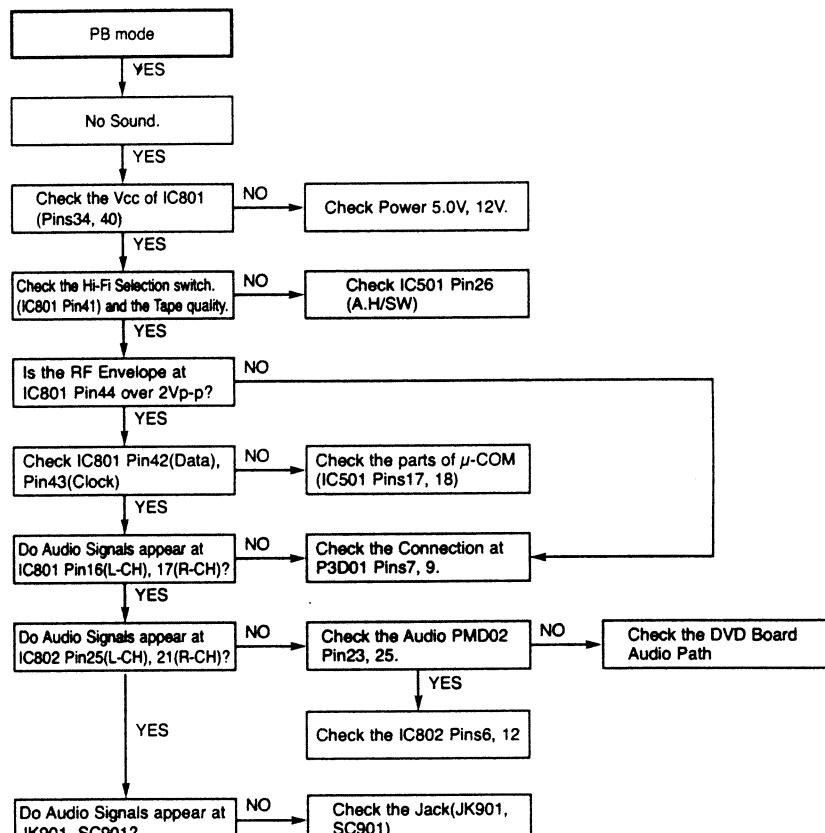
5. Hi-Fi CIRCUIT

(1) No Sound(EE Mode)



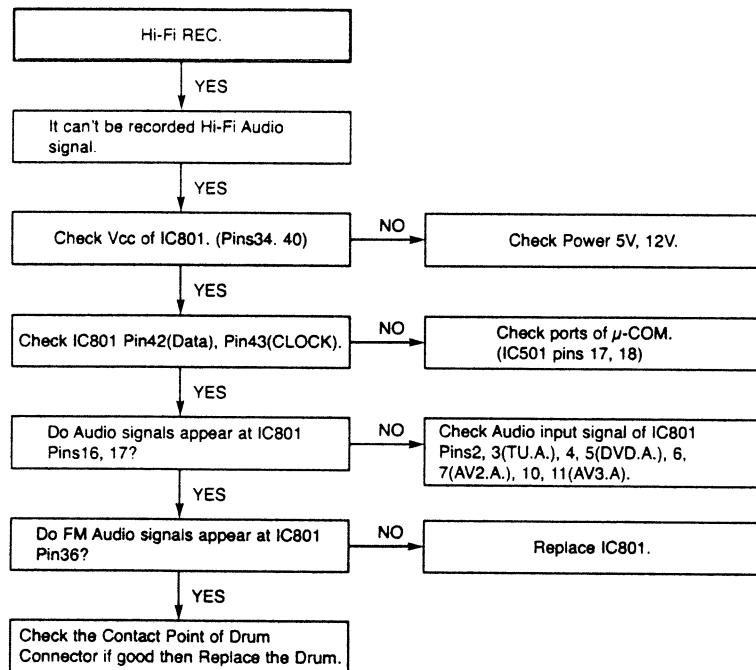
VCR ELECTRICAL TROUBLESHOOTING GUIDE

(2) Hi-Fi Playback



VCR ELECTRICAL TROUBLESHOOTING GUIDE

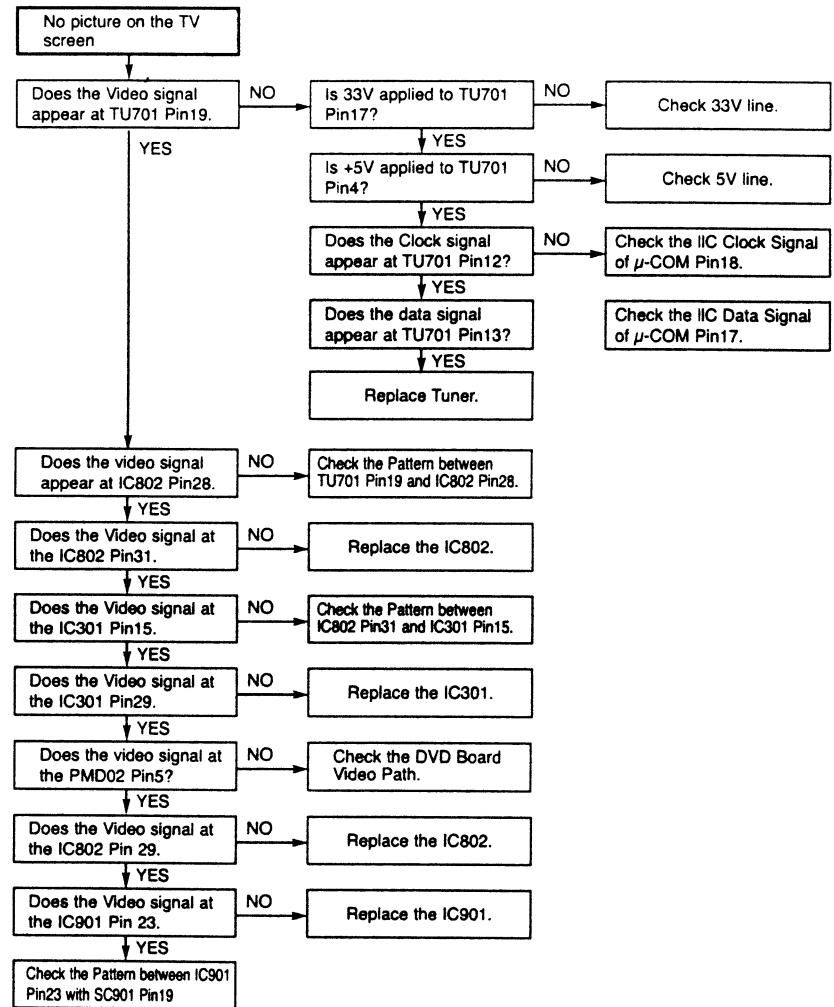
(3)



VCR ELECTRICAL TROUBLESHOOTING GUIDE

6. Tuner/IF CIRCUIT

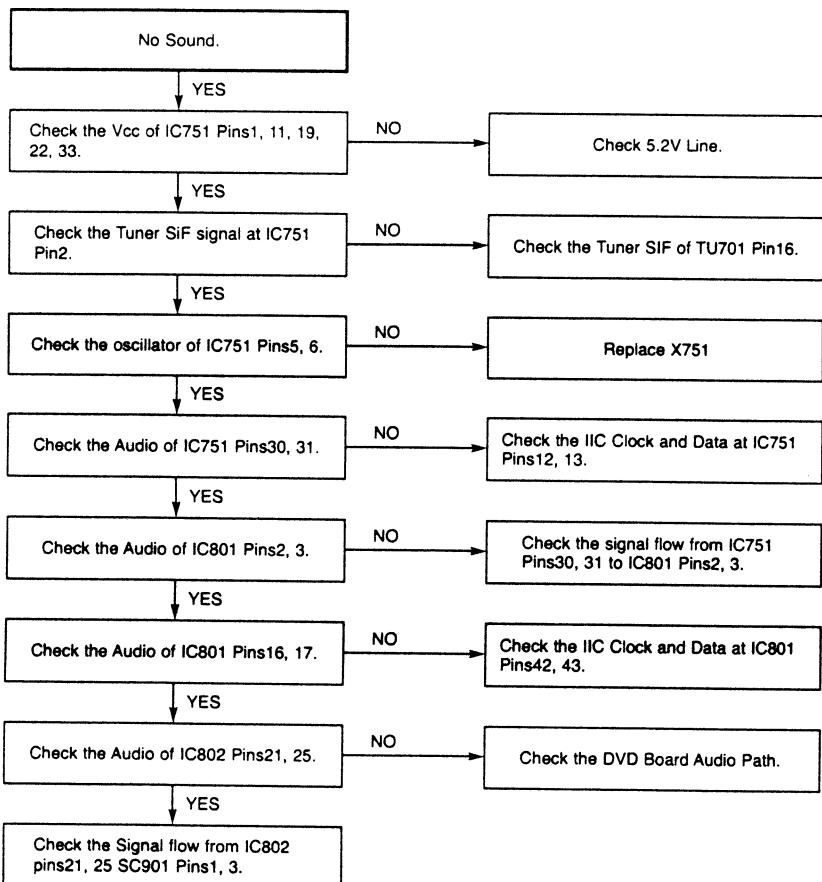
(1) No Picture on the TV screen



VCR ELECTRICAL TROUBLESHOOTING GUIDE

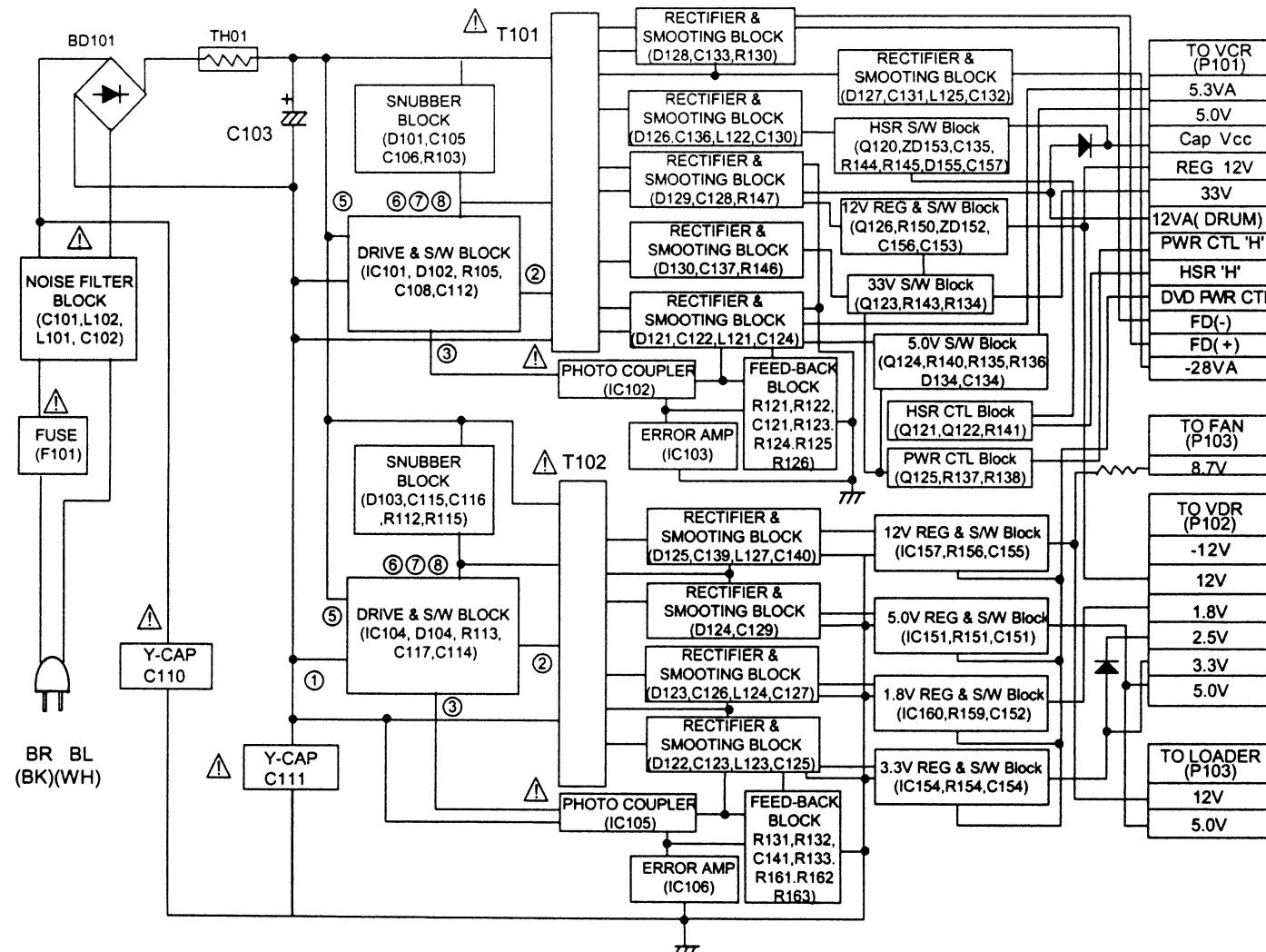
MEMO

(B) No Sound

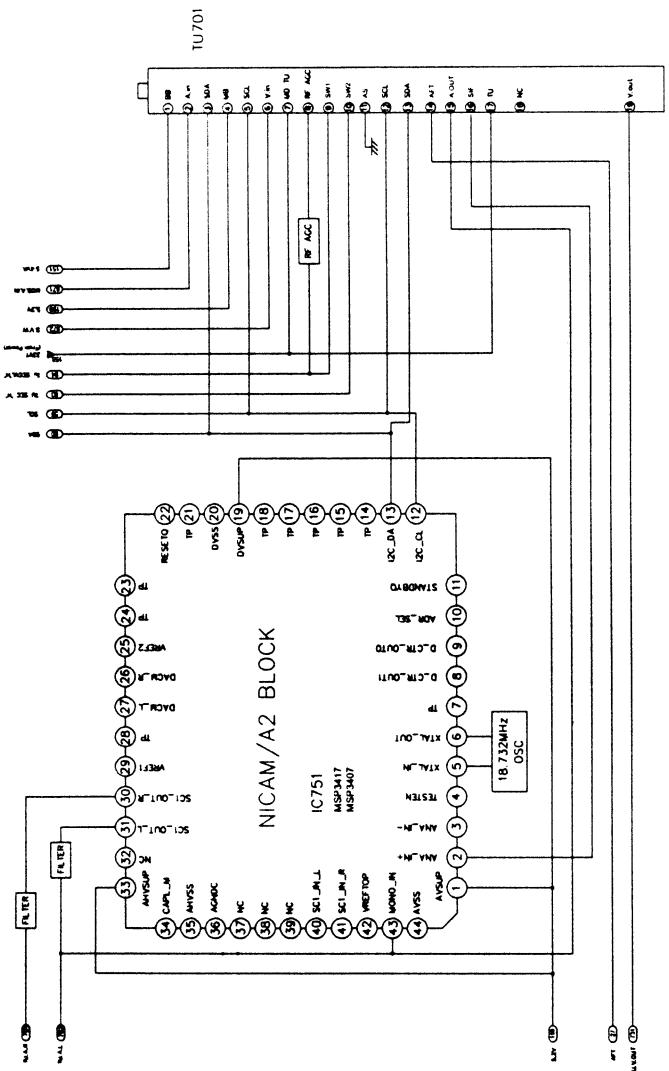


BLOCK DIAGRAMS

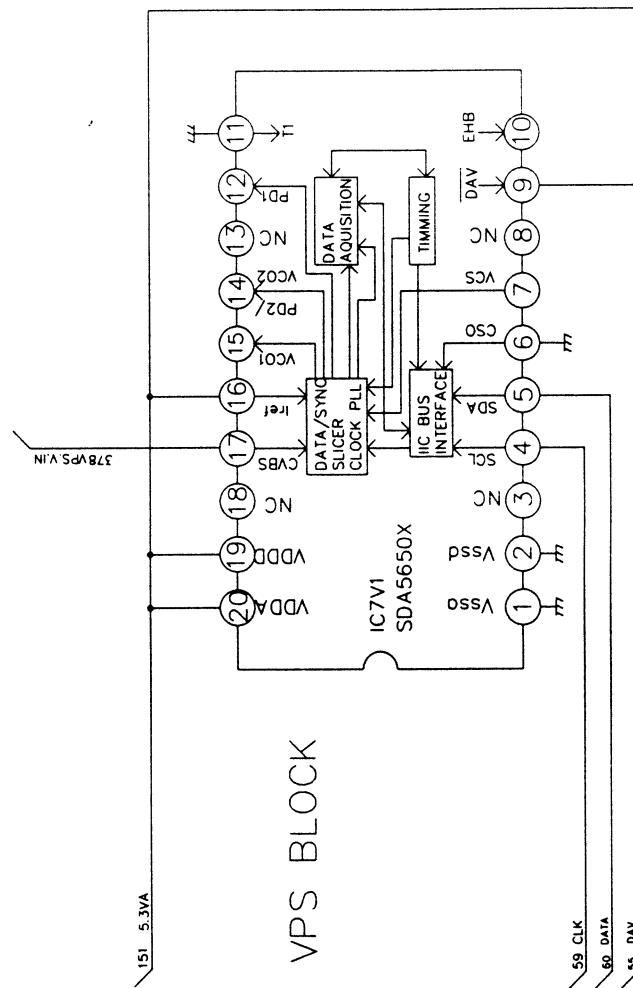
1. POWER(SMPS) BLOCK DIAGRAM



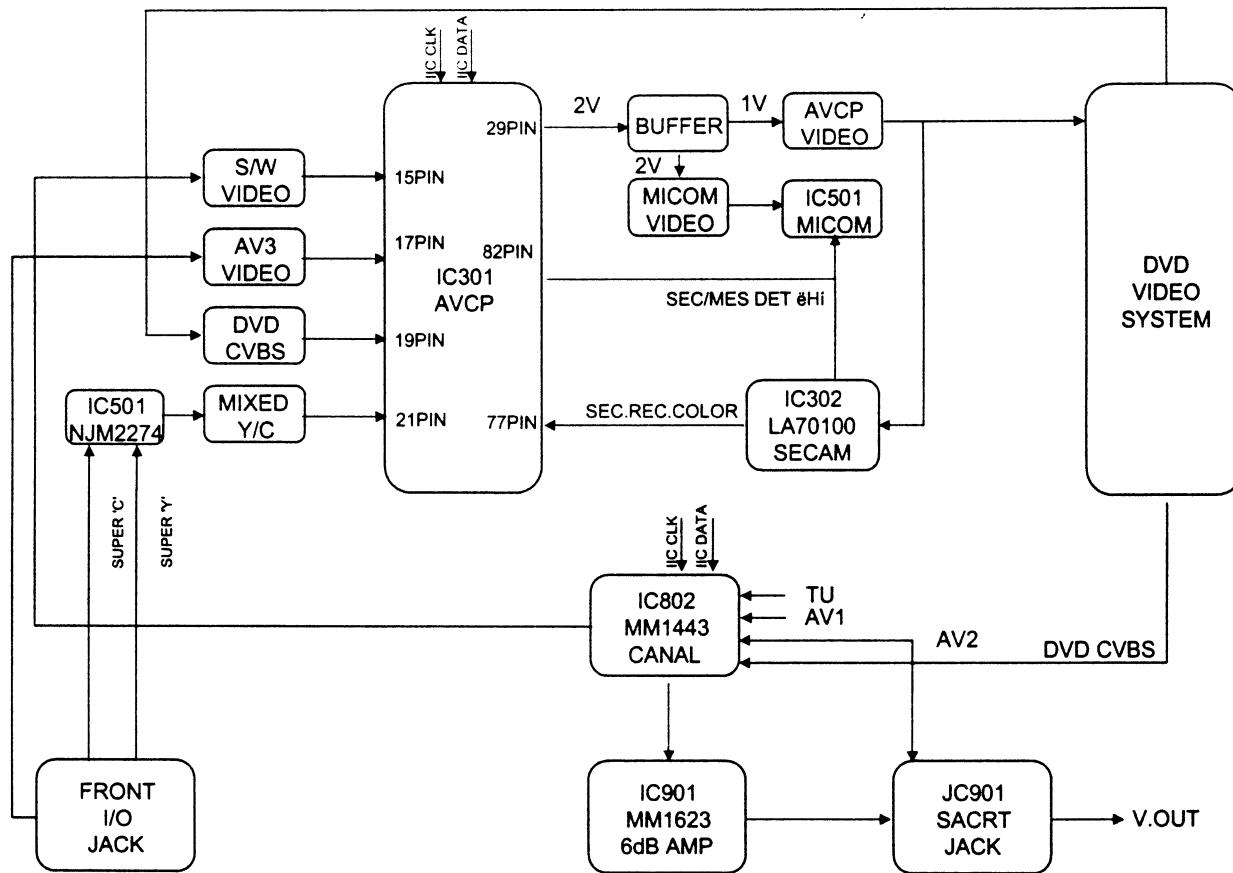
2. TUNF, NICAM & A2 BLOCK DIAGRAM



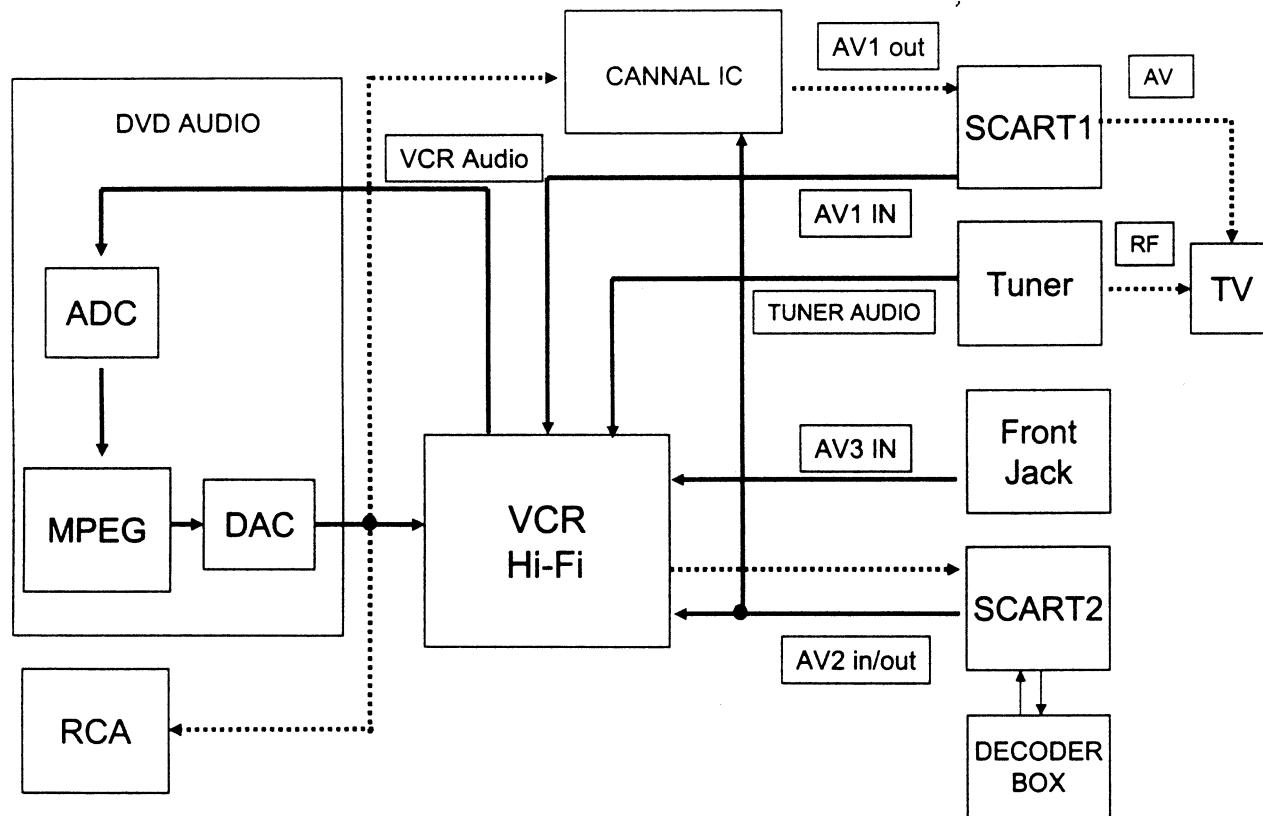
3. VPS BLOCK DIAGRAM



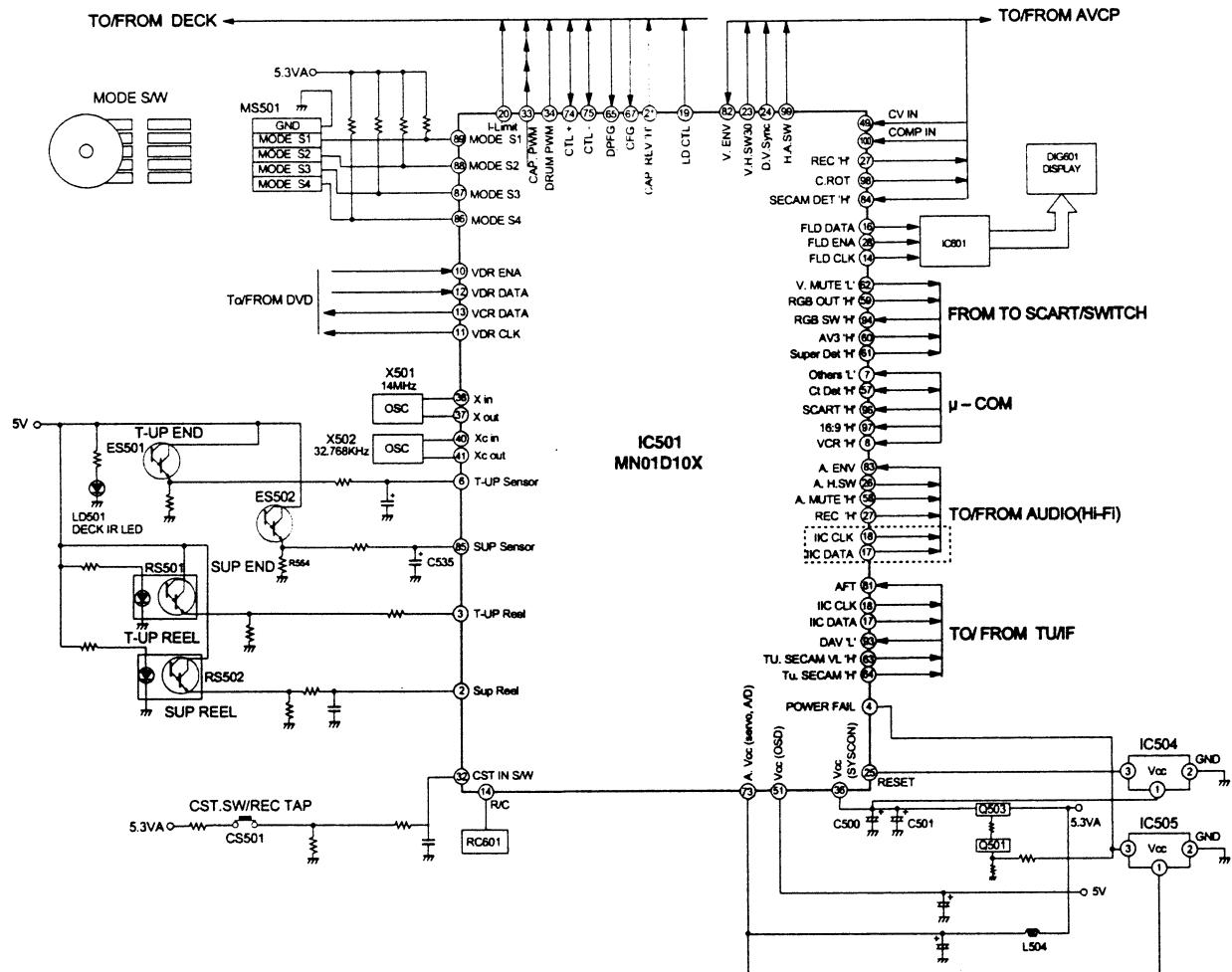
4. Y/C BLOCK DIAGRAM



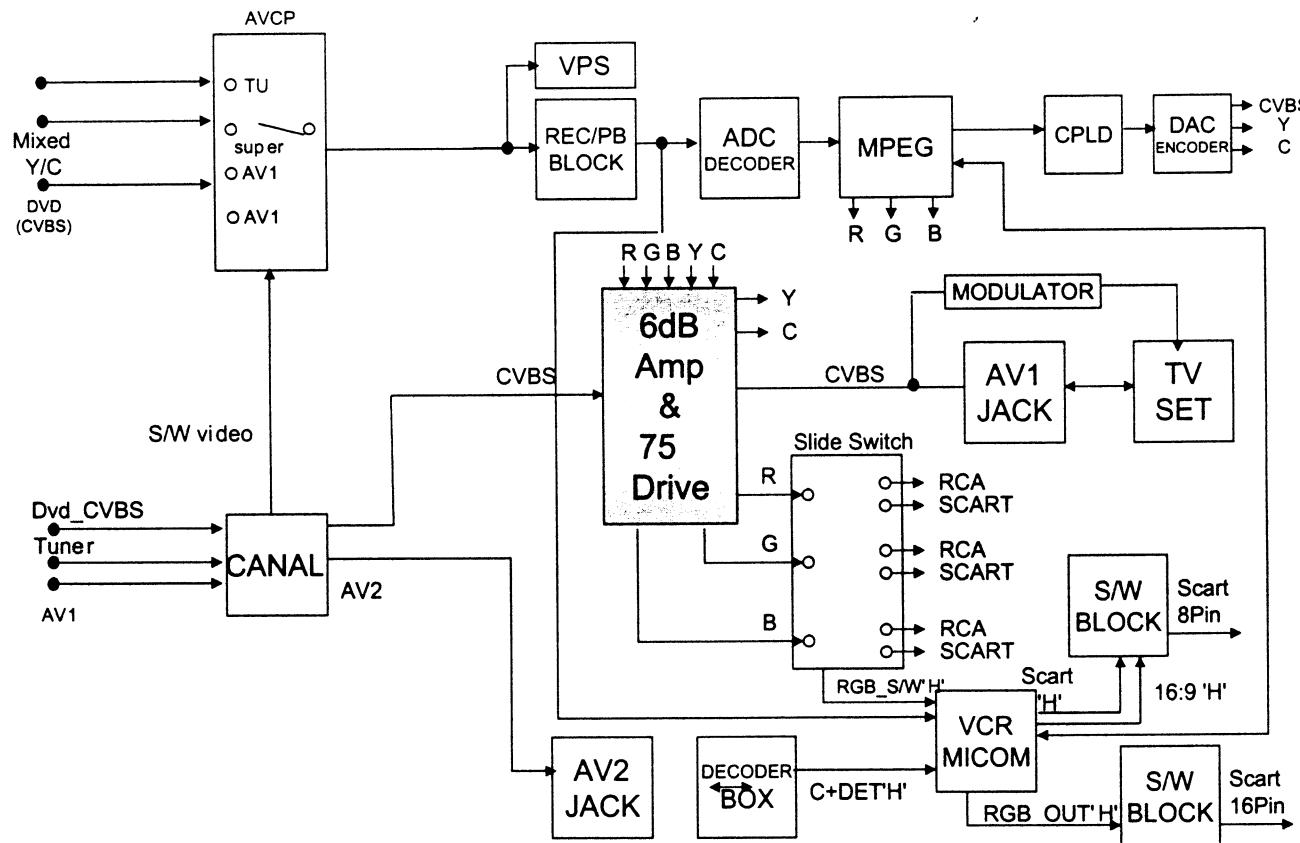
5. Hi-Fi BLOCK DIAGRAM



6. SYSTEM BLOCK DIAGRAM



7. SCART & SWITCH BLOCK DIAGRAM



CIRCUIT DIAGRAMS

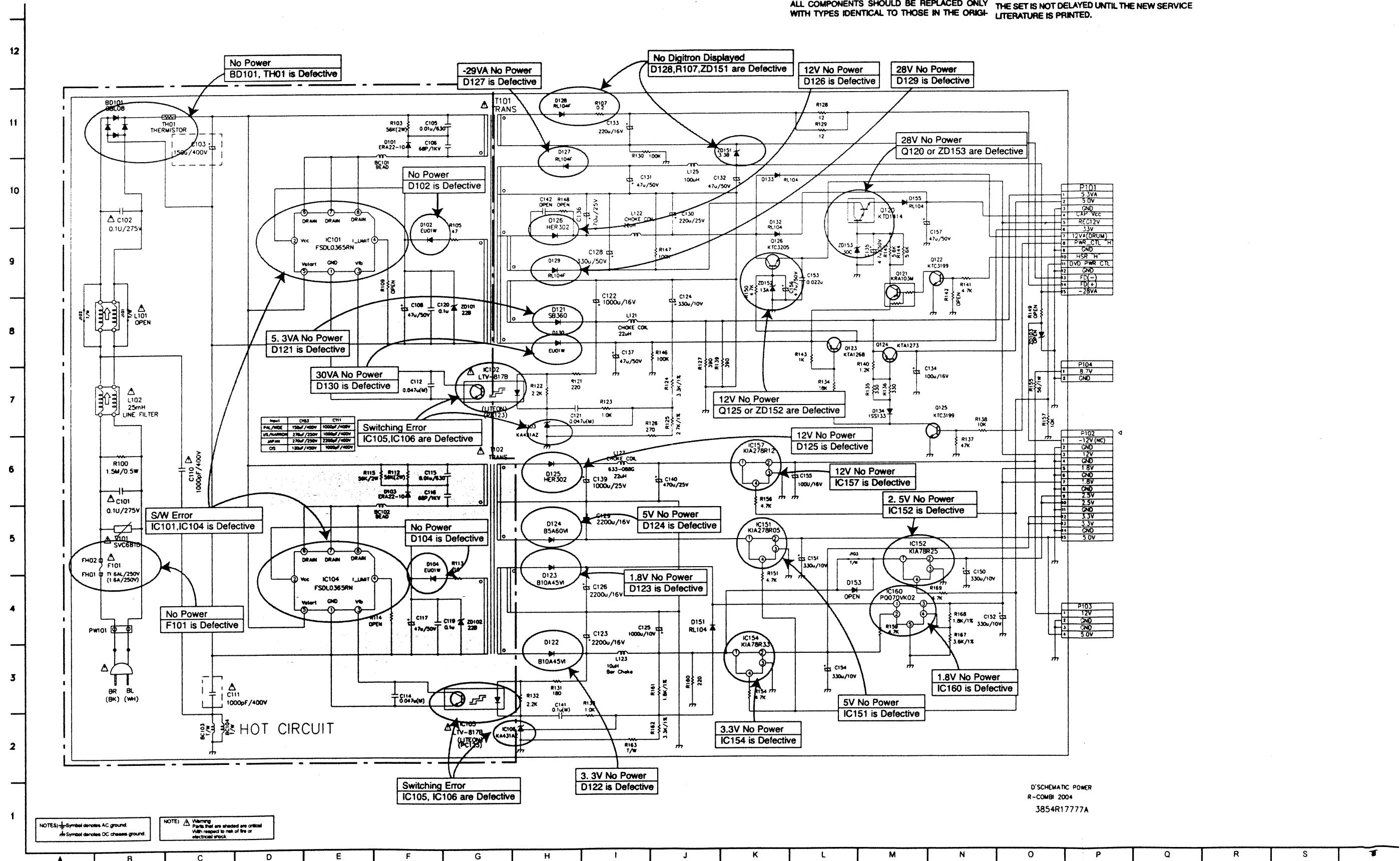
1. POWER(SMPS) CIRCUIT DIAGRAM

IMPORTANT SAFETY NOTICE

WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT PERMISSION FROM THE PHILIPS ELECTRONICS CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGIN-

NAL CIRCUIT. SPECIAL COMPONENTS ARE SHADeD ON THE SCHEMATIC FOR EASY IDENTIFICATION. THIS CIRCUIT DIAGRAM MAY OCCASIONALLY DIFFER FROM THE ACTUAL CIRCUIT USED. THIS WAY, IMPLEMENTATION OF THE LATEST SAFETY AND PERFORMANCE IMPROVEMENT CHANGES INTO THE SET IS NOT DELAYED UNTIL THE NEW SERVICE LITERATURE IS PRINTED.

- NOTE :**
1. Shaded (■) parts are critical for safety. Replace only with specified part number.
 2. Voltages are DC-measured with a digital voltmeter during Play mode.

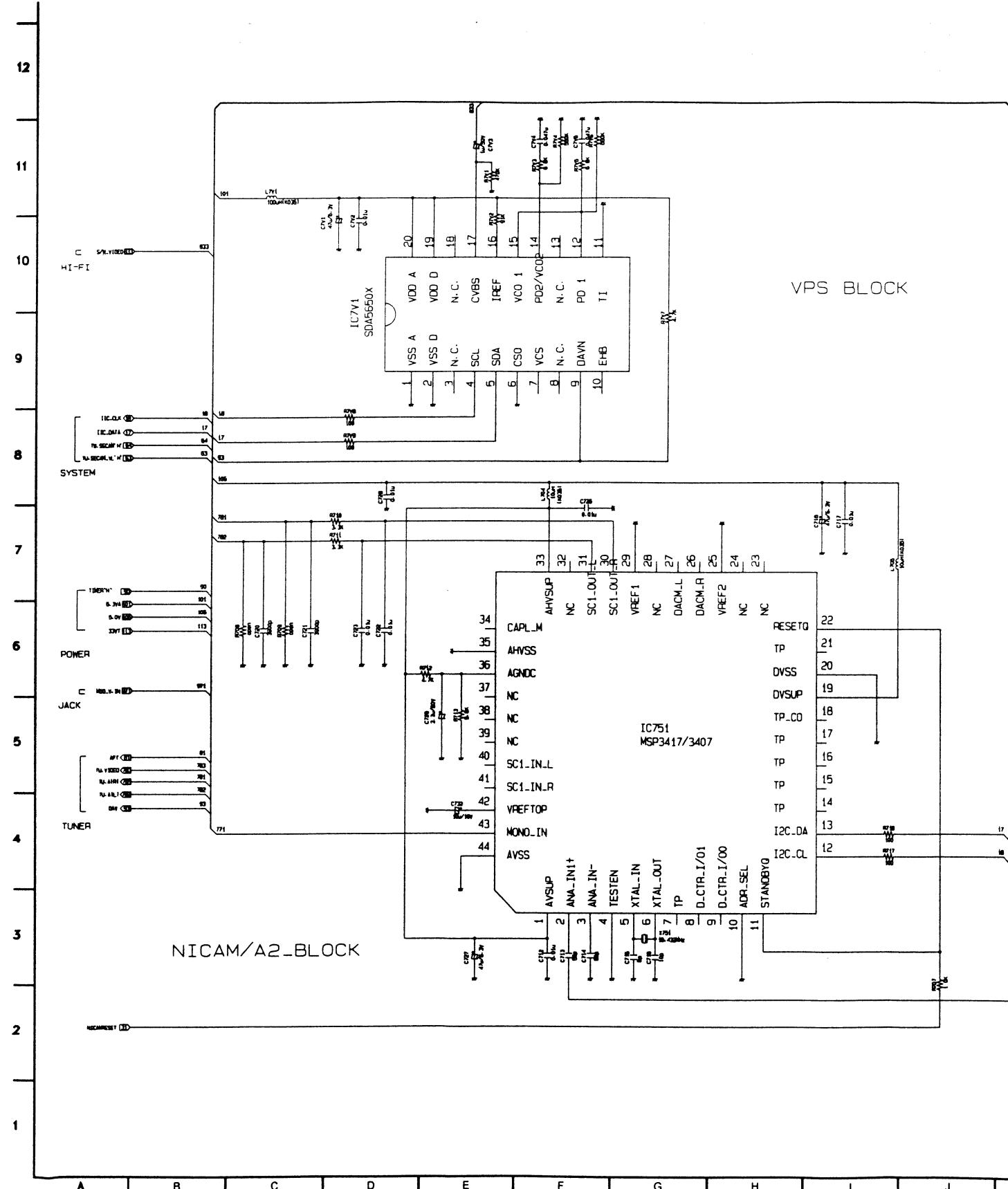


D'SCHEMATIC POWER
R-COMBI 2004
3854R1777A

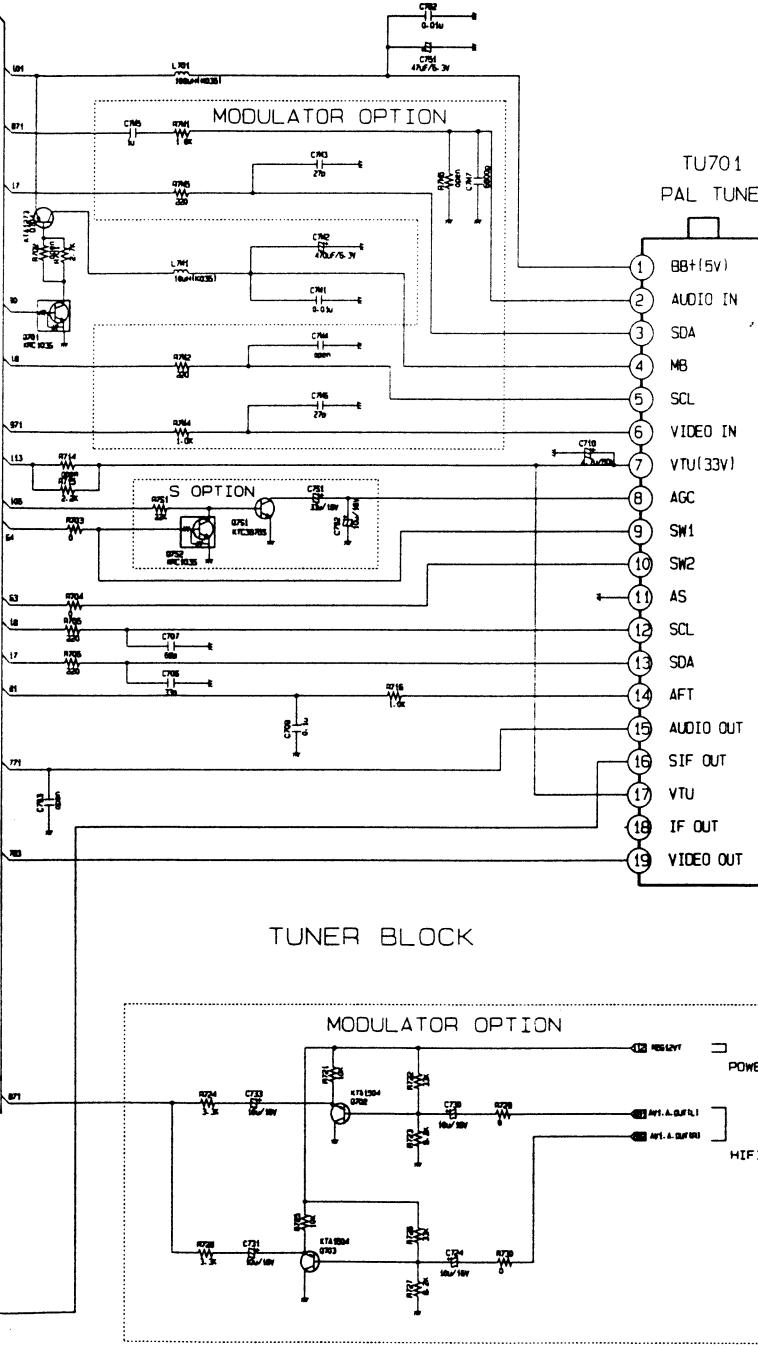
NOTES: □ Symbol denotes AC ground.
△ Symbol denotes DC chassis ground.

NOTE: △ Warning
Parts that are shaded are critical
With respect to risk of fire or
electrical shock.

2. TUNER CIRCUIT DIAGRAM

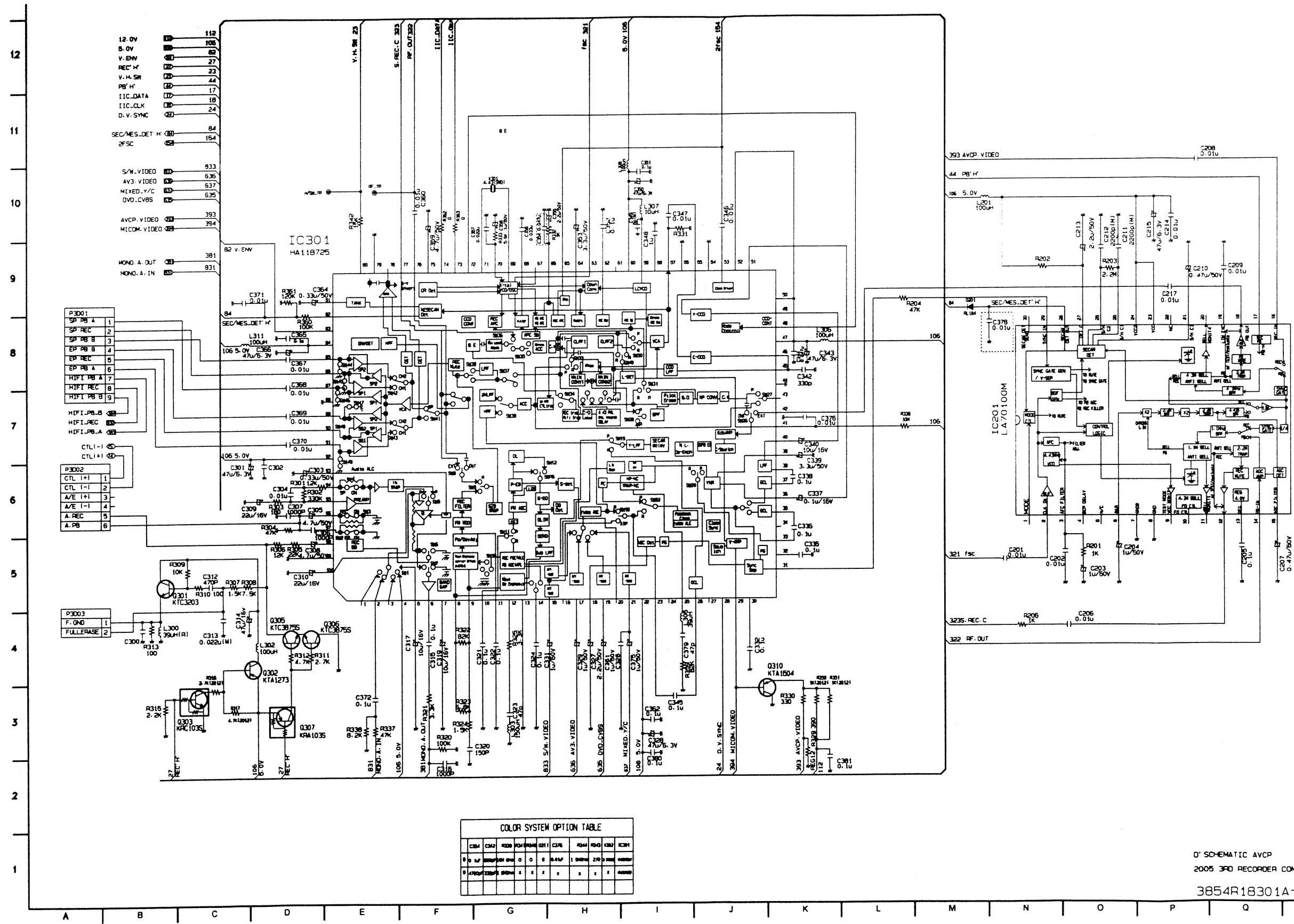


3-3

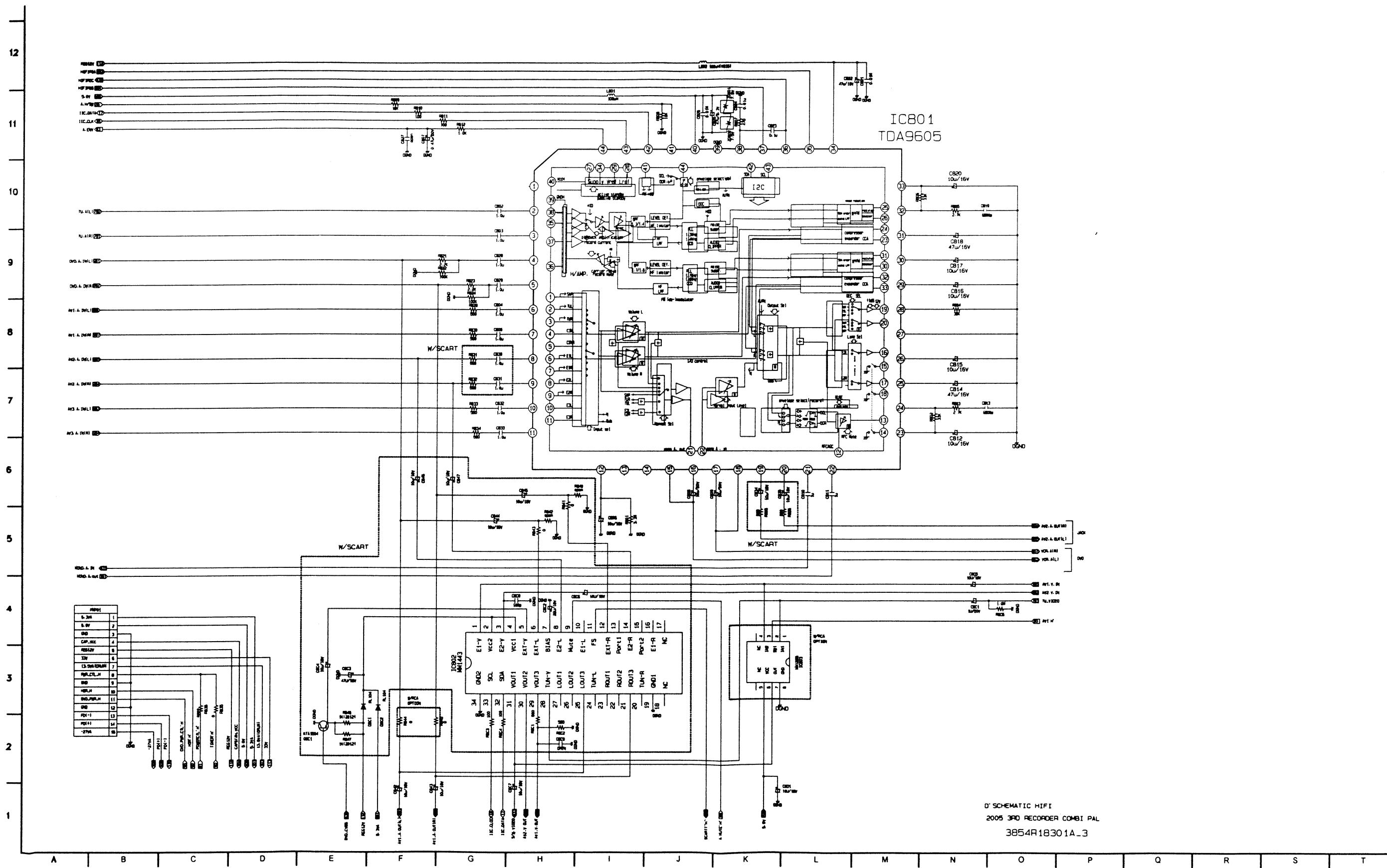


3-3

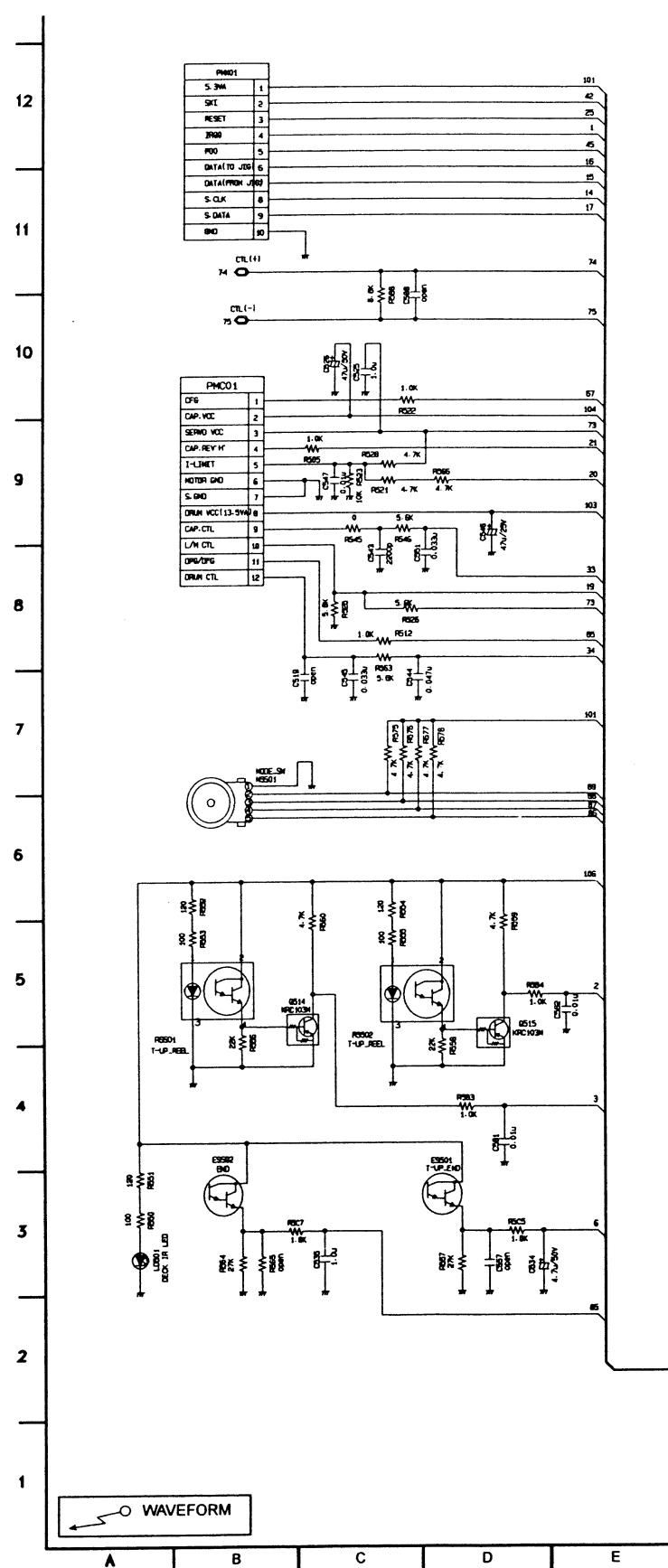
3. A/V CIRCUIT DIAGRAM



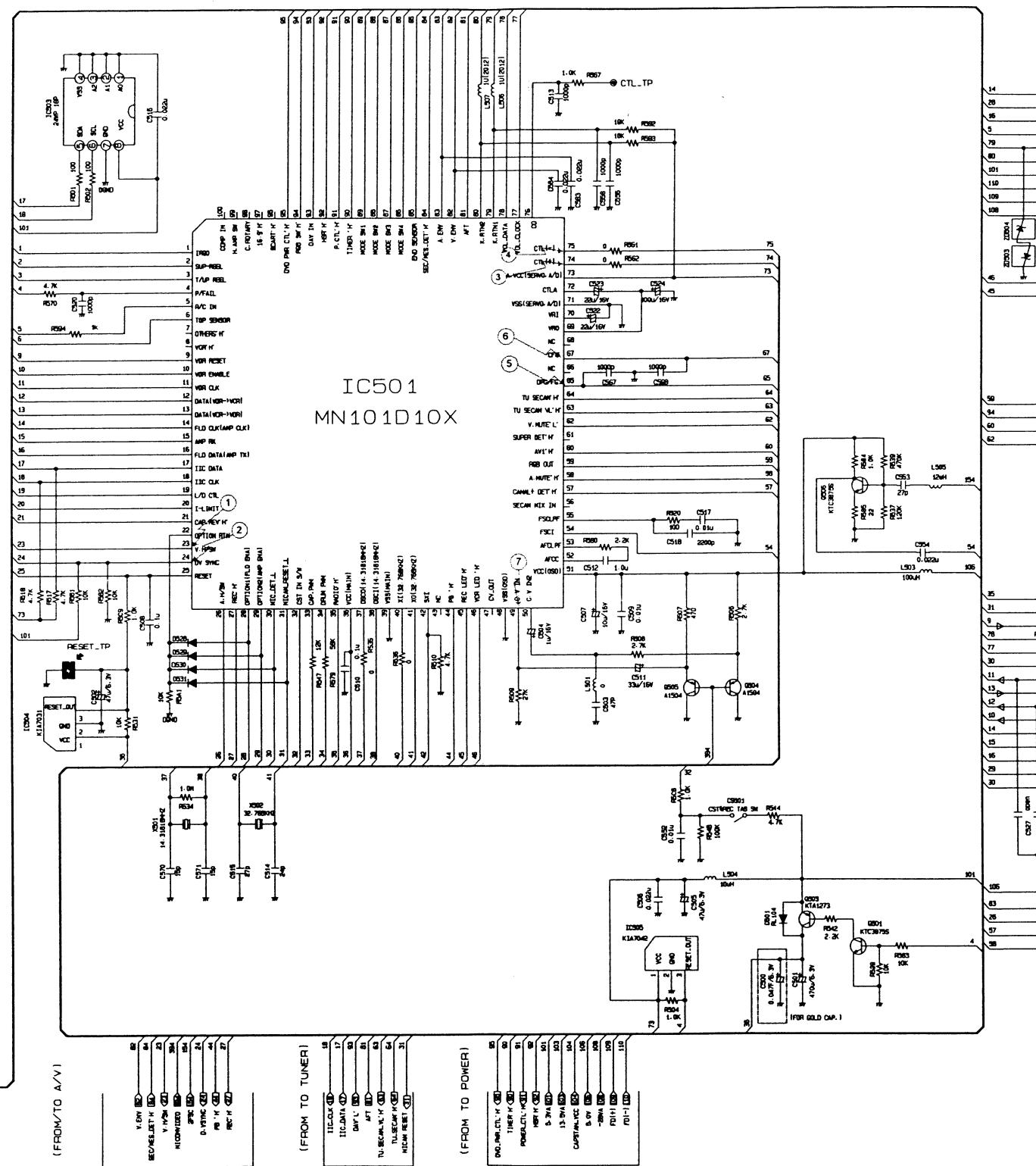
4. Hi-Fi CIRCUIT DIAGRAM



5. SYSTEM CIRCUIT DIAGRAM



3-41

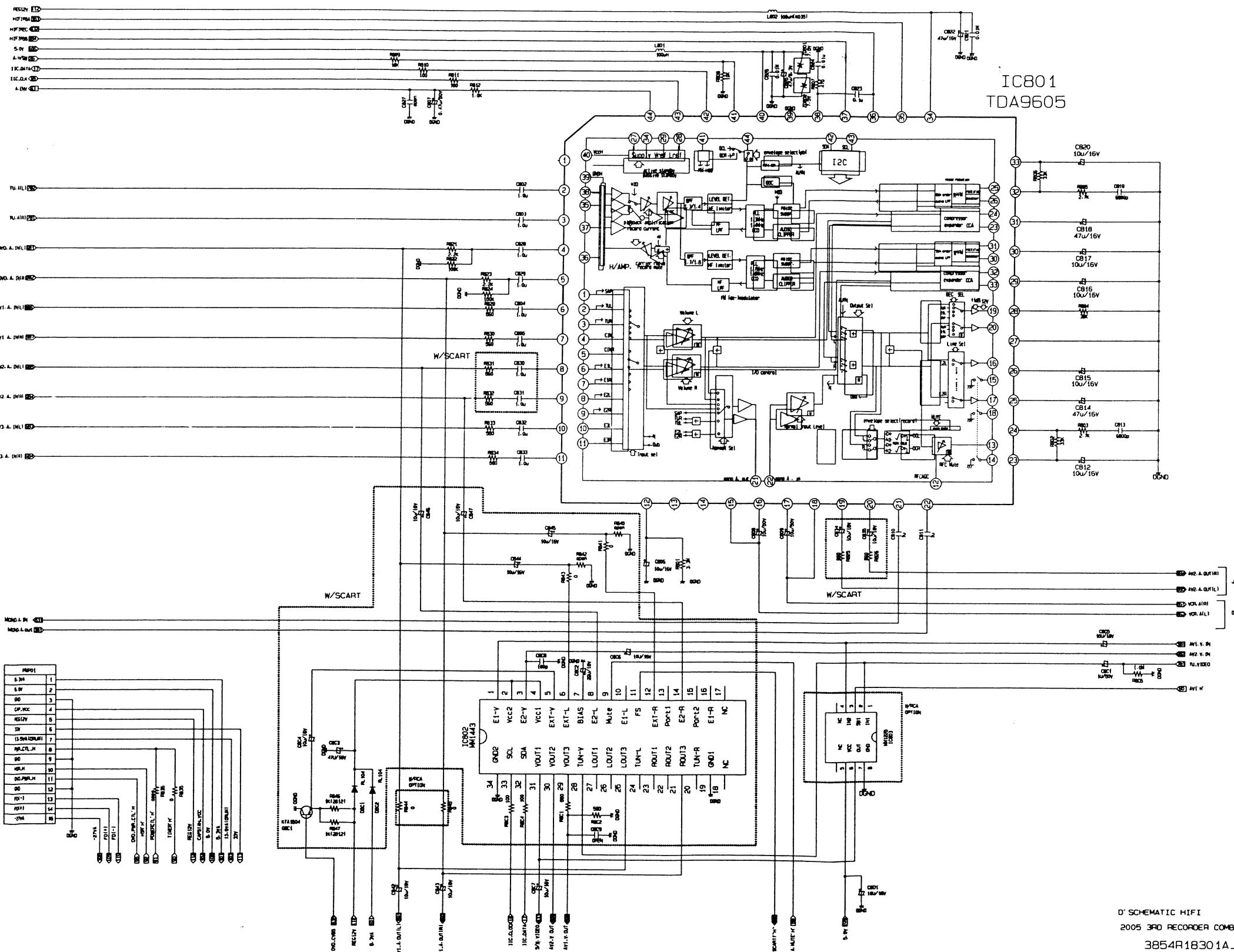


3-42

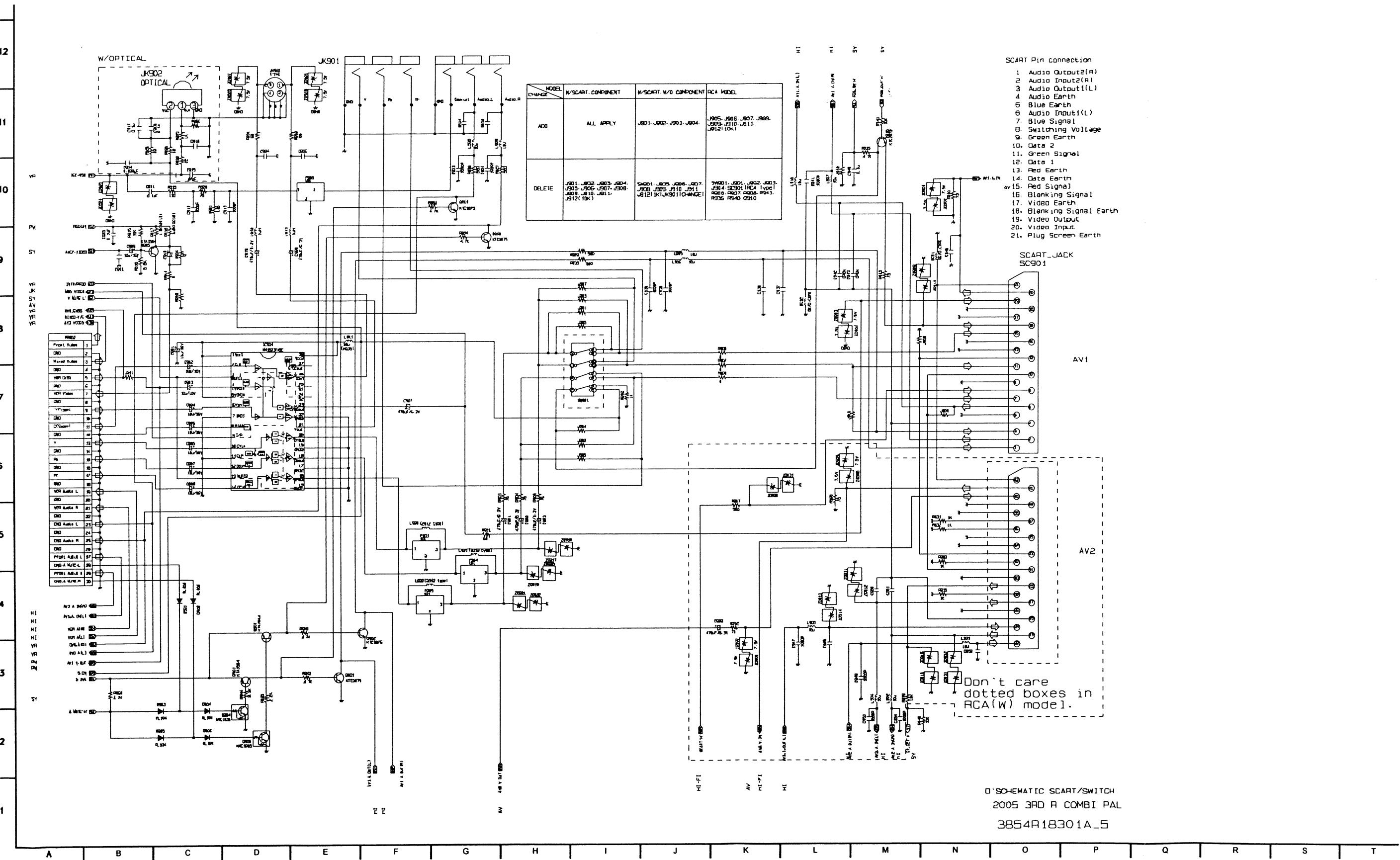
D' SCHEMATIC SYSTEM
3RD. RECORDER COMBI PAL

3854R18301A-1

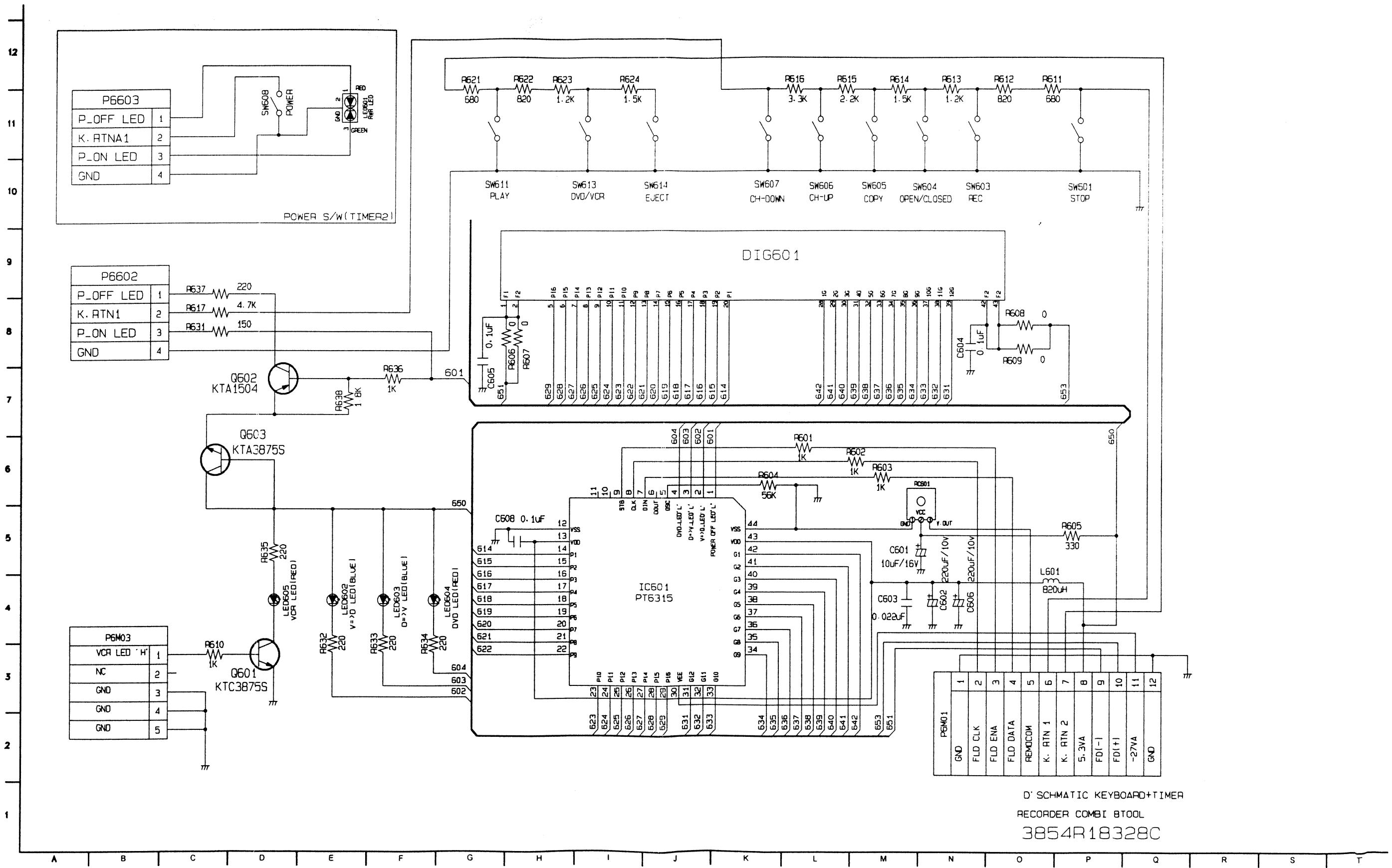
4. Hi-Fi CIRCUIT DIAGRAM



6. SCART CIRCUIT DIAGRAM (SCART Model Only)

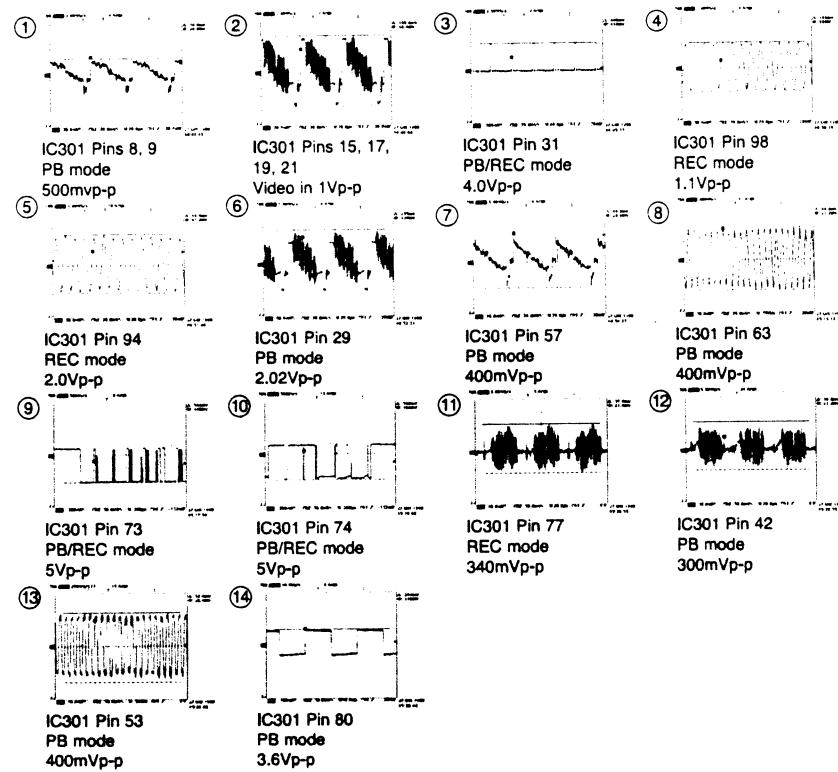


7. TIMER CIRCUIT DIAGRAM

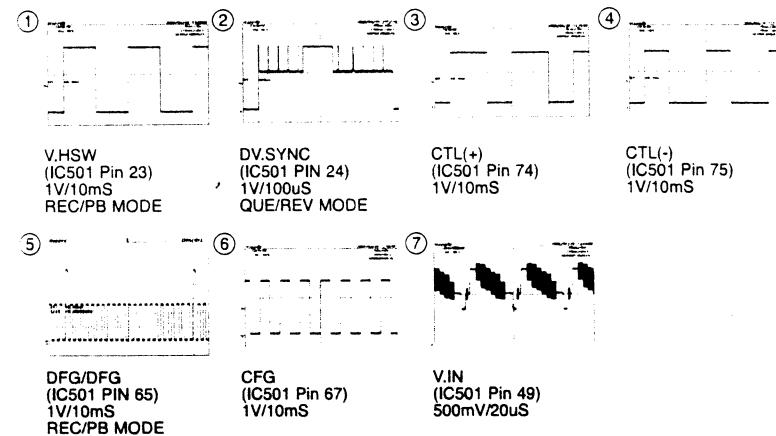


WAVEFORMS

♦ IC301 Oscilloscope Waveform



♦ IC501 Waveform Photographs



E-MODE	E	C	B
NO.			
Q501	0	0	740M
Q503	5.19	5.19	4.57
Q504	Y/C_VIDEO	0	Y/C_VIDEO
Q505	Y/C_VIDEO	0	Y/C_VIDEO
Q506	0	2Fsc	2Fsc
Q514	0	0	4.87
Q515	0	0	4.87
Q301	0	5.04	0
Q302	5.04	0	5.04
Q303	0	0	0
Q304	0	0	0
Q306	4.93	4.81	4.79
Q308	Y/C_VIDEO	0	Y/C_VIDEO
Q311	5.04	5.04	0
Q7S1	0	1.47	0
Q7S2	0	0	5.13
Q901	5.1	0	4.5
Q902	0	0	0
Q903	0	0	0
Q904	0	4.5	0
Q905	2.68	0	2
Q906	1.7	0	1.7
Q907	11.9	11.8	0
Q908	0	0	5
Q909	0	7.4	0
Q910	4.6	5	5.1

SECTION	EE		PLAY	
NO.	+	-	+	-
C203	3.55	0	3.51	0
C204	3.34	0	3.59	0
C207	3.12	0	1.93	0
C210	2.26	0	2.94	0
C213	3.29	0	2.77	0
C215	4.97	0	4.89	0
C301	5.01	0	0	0
C302	5.03	0	4.24	0
C304	4.99	0	4.85	0
C307	2.29	4.87	2.27	0
C311	5.11	5	190M	0
C314	2.35	0	2.31	0
C315	2.92	2.79	2.83	2.31
C316	1.48	0	1.57	0
C318	4.1	0	2.85	0
C320	2.39	0	2.2	0
C322	4.13	0	4.09	0
C323	2.35	0	2.31	0
C324	2.42	0	0	0
C325	2.95	0	3.13	0
C327	2.61	2.46	3.18(Y/C)	3.18(Y/C)
C331	17.5M	0	0	0
C333	4.94	0	4.88	0
C336	5.04	0	5.01	0
C337	3.36	0	2.53	0
C339	3.38	0	2.62	0
C346	5	0	4.91	0
C347	2.16	0	2.14	0
C348	1.62	0	1.5	0
C349	5.02	0	4.92	0
C353	2.31	0	2.25	0
C356	1.97	0	2.07	0
C357	2.17	0	2.02	0
C359	264M	0	130M	0
C362	5.2	0	5.19	0
C391	2.99	2.7	3.02	780M
C392	3.03	2.75	3.07	2.75
C393	3.03	2.76	3.12	0
C501	5.2	0	5.19	0
C502	5.19	0	5.19	0
C504	2.36	2.06	2.3	2
C505	5.22	0	5.19	0
C507	4.95	0	4.95	0
C511	2.41	1.32	2.41	1.3
C522	2.61	0	2.64	0
C523	2.61	2.61	2.64	0
C524	2.61	0	2.64	0
C526	16.74	0	13.6	0
C534	4.24	0	62M	0
C546	14.73	0	14.2	0
C7S1	4.9	4.17	4.85	4.09
C7S2	4.9	0	4.85	0
G7Y1	5.22	0.91	5.28	0
G7V3	2.00	1.47	2.16	950M
C710	32.61	0	32.4	0

• CIRCUIT VOLTAGE CHART

MODE PIN NO.	EE	PLAY	MODE PIN NO.	EE	PLAY
IC 301					
1	20m	100m	55	1.3	1.48
2	20m	100m	56	0	0
3	20m	100m	57	2.08V	2.18
4	1.95V	4.88V	58	1.78V	2.14
5	1.94V	4.88V	59	4.6V	4.62
6	2.64	3.12V	60	4.62V	4.62
7	2.8V	2.74	61	3.82V	0
8	2.5V	1.7V	62	2.2V	2.08V
9	2.04	1.3	63	2.32V	2.32
10	1.80V	1.88	64	1.62V	1.64
11	2.0V	1.8	65	1.62	2.28
12	1.6V	0.72	66	2.30V	1.68
13	0V	0	67	0	0
14	1.26V	1.3	68	1.12V	1.14
15	3.40V	3.36	69	2.3V	2.38V
16	0	4.78	70	0.82	0.82V
17	2.38V	2.32	71	2.2V	2.18V
18	1.88V	2.84	72	100m	2.42
19	3.02V	2.94	73	4.96V	4.98
20	0	0	74	4.96V	4.98
21	2.38V	2.34V	75	2.56V	2.54
22	4.88V	4.82	76	2.34V	2.18
23	2.64V	2.24	77	2.68V	2.64
24	0	0	78	0	4.72
25	2.08V	2.14	79	0V	0
26	3.08V	2.66V	80	2.16	2.68
27	0	0	81	4.06V	20M
28	150mV	140m	82	0V	0
29	3.88V	3.18V	83	120M	2.72
30	2.08V	2.74V	84	2.76V	4.74
31	4.74V	4.72m	85	2.114	2.42
32	2.08V	2.12V	86	2.04V	2.08V
33	2.42V	2.26	87	2.04	2.08V
34	1.58	1.54V	88	0V	0
35	3.30V	3.36	89	2.14	2.08V
36	2.50V	2.32	90	2.14	2.08
37	3.10V	3.18	91	2.14V	2.08
38	2.60V	2.28	92	4.88V	4.89
39	1.40V	1.42V	93	300MV	260M
40	2.30V	2.16V	94	2.48V	2.40V
41	1.08V	1.58V	95	2.48V	1.86
42	1.82V	1.84	96	2.06V	1.86
43	2.04V	2.28V	97	0	0
44	0	0	98	2.30V	2.46V
45	2.88V	3.04V	99	0V	20M
46	2	2.96	100	2.48	2.42V
IC 501					
1	0	0	56	0	0
2	4.52	4.82	57	0	0
3	4.84	4.84V	58	120m	120m
4	4.84	4.58V	59	4.92V	4.92V
5	4.58	4.58V	60	4.92V	4.92V
6	80m	60m	61	0	0
7	0	0	62	4.82	4.82V
8	0	0	63	3.98	3.98V

MODE PIN NO.	EE	PLAY
9	4.98	5.30
10	4.8	4.80V
11	4.82	4.82
12	4.72V	4.82
13	4.92	4.92
14	5.02	5.02
15	0	0
16	4.98V	4.98
17	5.04	5.04
18	4.88V	9.98
19	2.46V	2.46
20	3.36V	3.36
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	2.96V	3.98
31	2.96	3.98
32	0	0
33	3.64V	3.58V
34	0	0
35	2.62V	2.58
36	120m	3.24V
37	0	0
38	1.96	0
39	0	0
40	2.54V	2.54
41	2.54	2.56
42	2.48	2.48
43	2.3V	2.34
44	0	0

MODE PIN NO.	EE	PLAY
91	0	0
92	0	0
93	5.04V	5.04V
94	4.88	0
95	4.98	4.98
96	0	0
97	0	0
98	4.98	4.98
99	20m	4.98V
100	0	0

IC 751

MODE PIN NO.	EE	PLAY
1	4.88	4.88V
2	1.46	1.48
3	1.38	1.38
4	0	0
5	2.26V	2.24
6	2.38	0
7	0	0
8	0	0
9	DA/CL(5.34)	DA/CL(5.34)
10	DA/CL(5.34)	DA/CL(5.34)

IC 801

MODE PIN NO.	EE	PLAY
11	0	41M
12	DA/CL(2.82)	DA/CL(2.82)
13	0	0
14	DA/CL(2.82)	DA/CL(62M)
15	2.89	1.41
16	1.53	950M
17	DA/CL(1.14)	DA/CL(810M)
18	0	0
19	5.28	5.24
20	5.26	5.24

IC 801

MODE PIN NO.	EE	PLAY
7	0	0
8	2.26	2.18
9	0	0
10	1.64V	1.72
11	0	0
12	1.92V	2.08
13	4.86	4.82
14	1.92V	2.08
15	0	2.31
16	2.26V	2.64

IC 804

MODE PIN NO.	EE	PLAY
3	6.02	5.96
4	0	0
5	6	5.96
6	5.99	5.94
7	22.3m	21.3m
8	6.68	6.65
9	6.7	6.67
10	1.1m	0
11	6.71	6.68
12	5.04	5.05
13	12.03	11.99
14	6.7	6.7
15	0	0
16	6.73	6.69

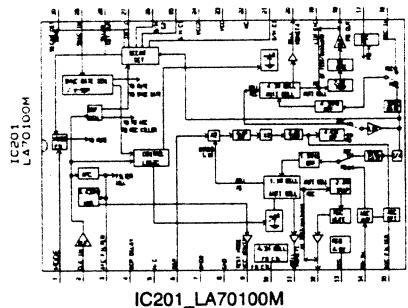
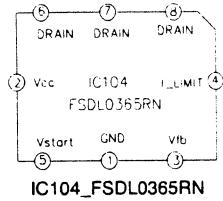
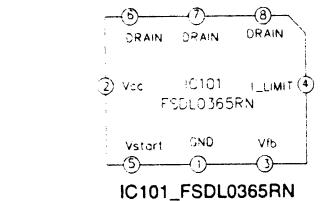
IC 903

MODE PIN NO.	EE	PLAY
1	1.3	1.3
2	4.9	4.9
3	1.66	1.56
4	0	0
5	0	0
6	4.9	4.9
7	1.7	1.6
8	0	0
9	3.04	3.03
10	2.52	2.52
11	2	2.05
12	3.22	1.97
13	3.99	3.99
14	2.5	2.495
15	3.11	1.93
16	3.2	3.18
17	27.4m	4.11
18	112.1m	3.35
19	2.27	2.26
20	1.99	2.12
21	2.31	2.37
22	0.78	0.81
23	5.02	5.01
24	5.02	5
25	2.44	2.27
26	2.44	2.26
27	2.82	2.85
28	181.5m	187.4m
29	371.6m	212.2m
30	2.08	2.08

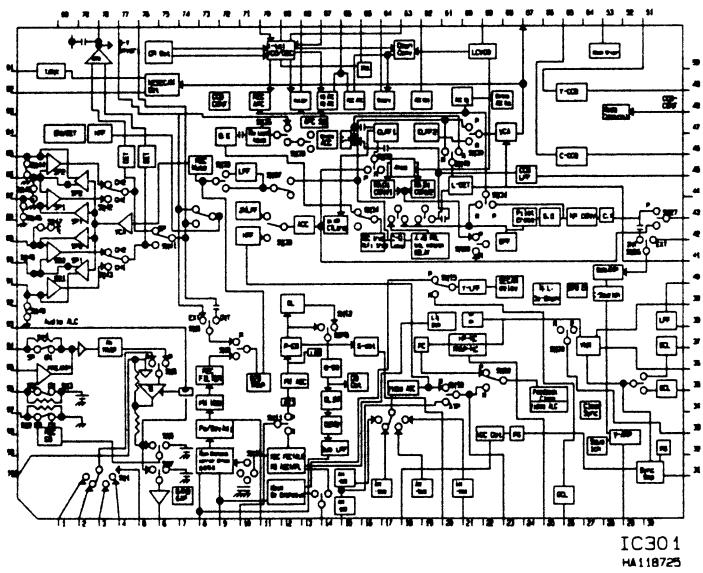
IC 302

MODE PIN NO.	EE	PLAY
1	3	2.99
2	36.3m	38.1m
3	3.04	3.04
4	6.4m	39.1m
5	3.04	3.04
6	5.02	5.03
7	2.24	2.23
8	0	0

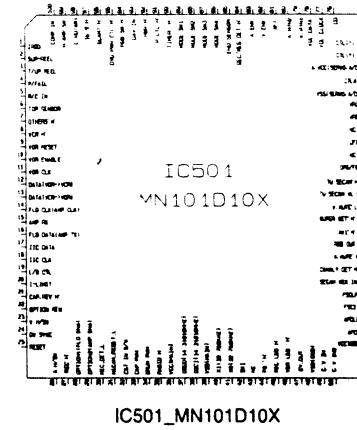
• IC BLOCK DIAGRAMS



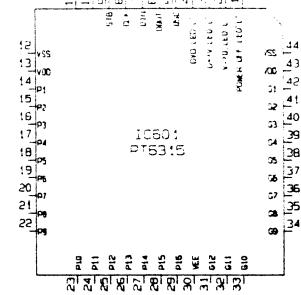
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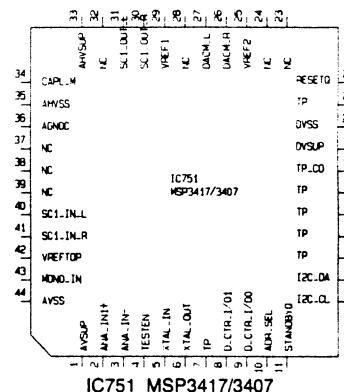
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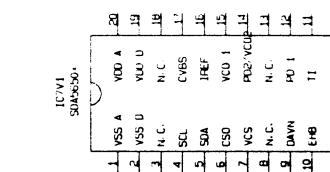
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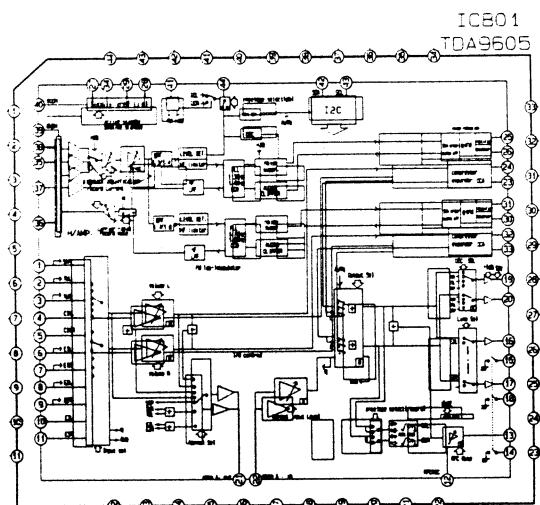
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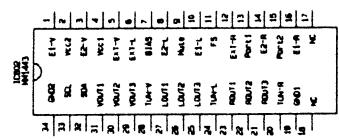
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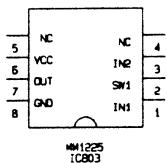
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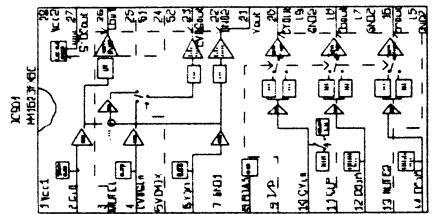
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IC802_MM1443



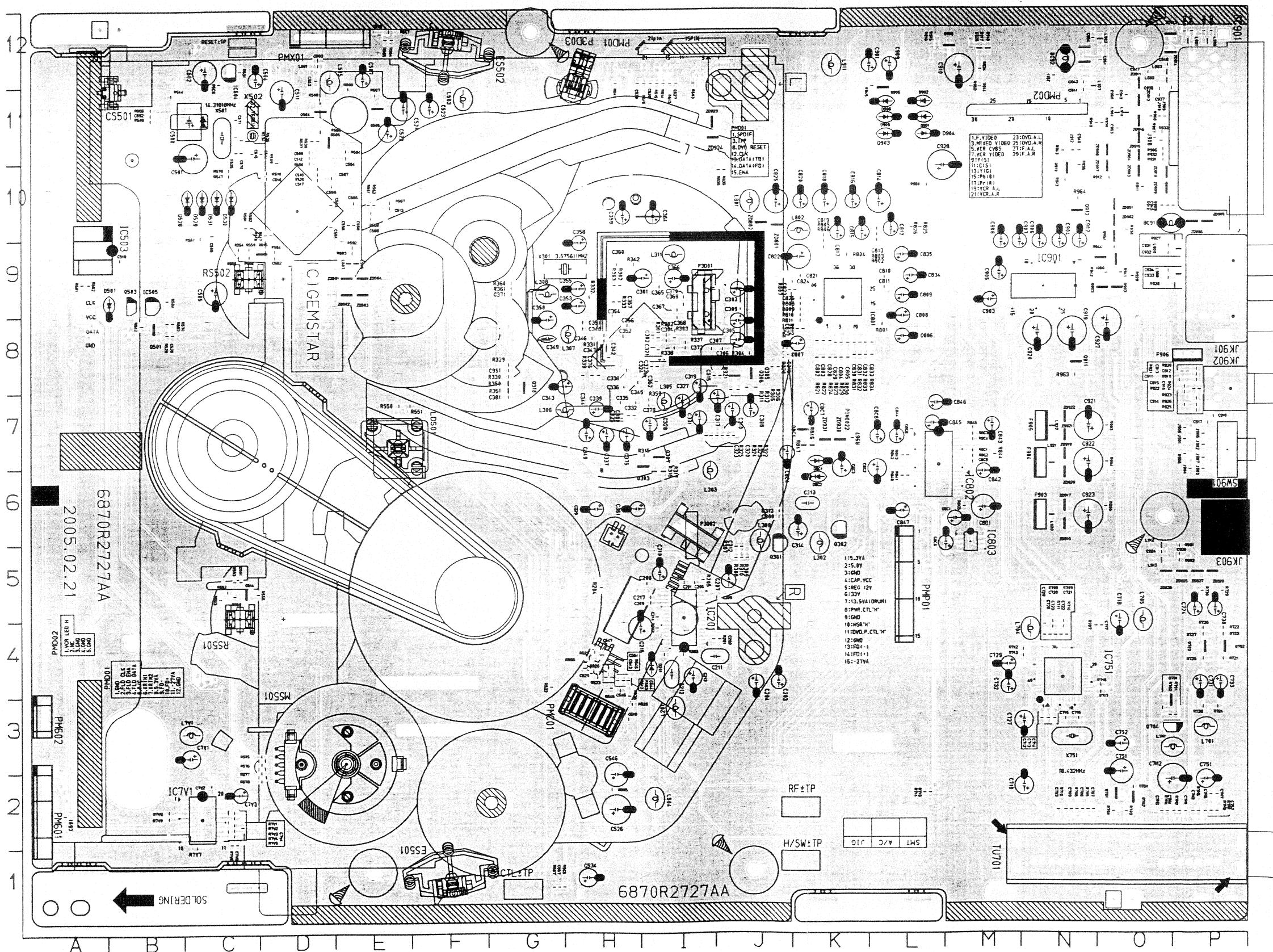
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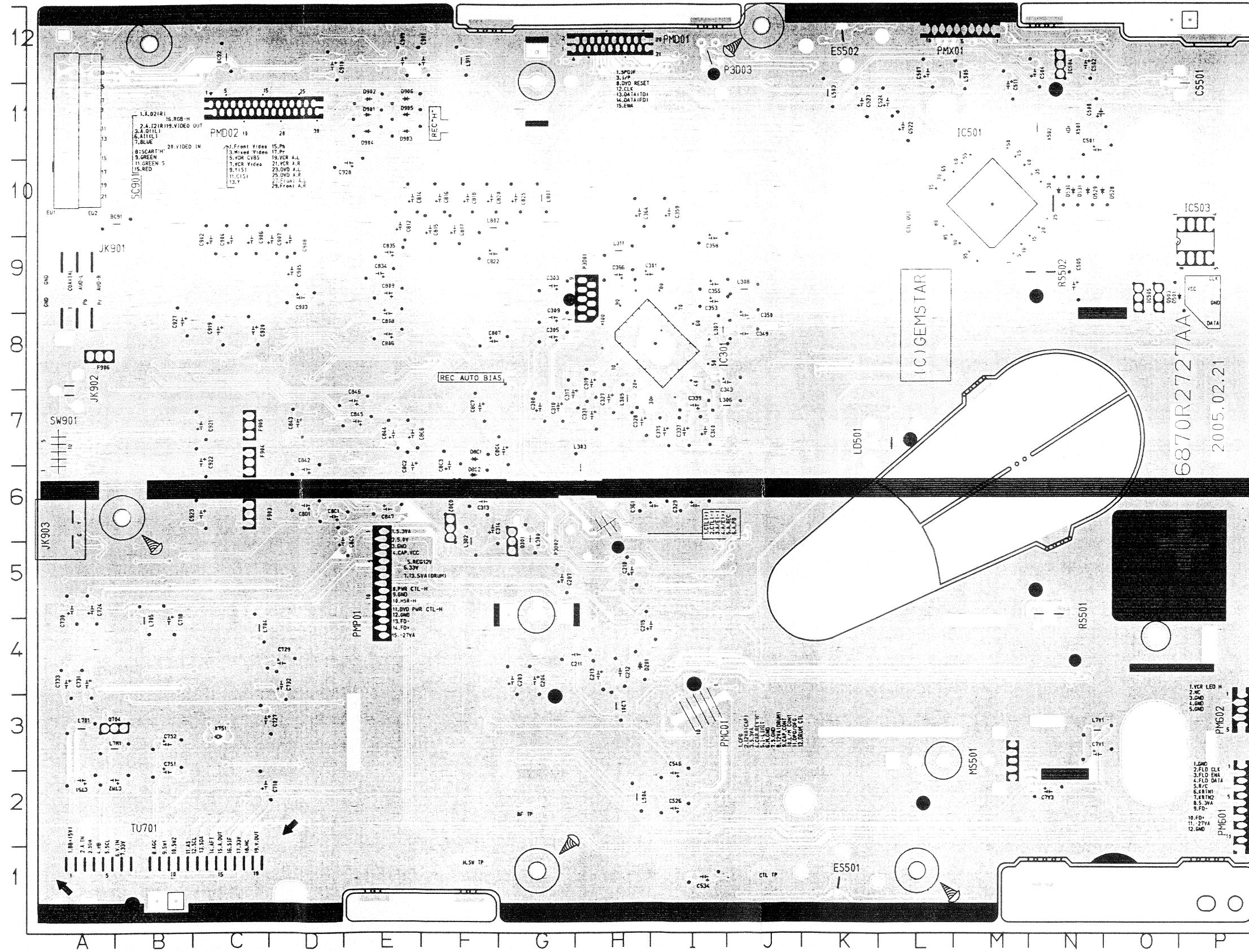
LOCATION GUIDE																					
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BC92	M12	C368	I8	C722	N4	C801	-6	IC505	B9	PIN0042	D10	PIN0227	L7	0910	N10	R542	B8	R7M2	P2	R925	P7
C201	I5	C369	I9	C723	N4	C901	-2	IC751	N4	PIN0043	D11	PIN0228	N9	0911	N8	R544	B11	R7M4	P2	R926	P7
C202	J4	C370	I9	C724	P5	C902	-5	IC7Y1	C2	PIN0044	E10	PIN0229	N8	0912	N10	R545	H4	R7M5	P2	R927	P9
C203	J4	C371	G9	C725	N4	C903	-8	IC801	X9	PIN0045	D10	PIN0230	N8	0921	I4	R546	H4	R7M6	P2	R928	P3
C204	J4	C372	I8	C727	N3	C904	-9	IC802	L7	PIN0046	G10	PIN0231	N8	0922	I4	R547	C10	R7S1	P2	R929	09
C205	J5	C373	H7	C728	N4	C905	-3	IC803	M5	PIN0047	G10	PIN0232	N8	0923	I4	R548	B10	R7S1	P2	R930	010
C206	I5	C376	M6	C729	M4	C906	-9	IC804	B8	PIN0048	H11	PIN0233	O11	0924	I5	R549	E7	R7V2	P2	R931	010
C207	J5	C378	I5	C730	P5	C907	-6	IC901	P7	PIN0049	H10	PIN0235	O11	0925	I5	R551	C7	R7V3	C3	R932	011
C208	J5	C379	J1	C731	P5	C908	-6	IC901	P7	PIN0050	H11	PIN0236	O5	0926	I5	R552	C7	R7V4	C3	R933	011
C209	I5	C380	H7	C732	M4	C909	-1	IC903	P6	PIN0051	E12	PIN0237	O5	0927	I5	R553	C5	R7V5	C3	R934	M12
C210	J5	C381	C7	C733	P4	C910	-12	IC904	P6	PIN0052	H12	PIN0238	O2	0928	I8	R554	C3	R7V6	C3	R935	N10
C211	I4	C500	C11	C751	P2	C911	-9	IC905	P7	PIN0053	D11	PIN0244	K7	0929	I8	R555	C9	R7V7	C3	R936	011
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C302	I8	C508	C10	C7M7	P2	C919	-8	IC913	N8	PIN0063	N2	PIN0254	O9	09312	J1	R563	H4	R806	K9	R956	P7
C303	J9	C509	I8	C7M8	P2	C920	-8	IC914	N8	PIN0064	N2	PIN0255	O9	09313	J13	R564	E12	R807	J9	R957	M11
C304	I8	C510	D10	C7M9	S3	C921	-8	IC915	N8	PIN0065	N2	PIN0256	O9	09314	J15	R565	E12	R808	J9	R960	L10
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C308	J7	C514	D11	C7M13	C2	C925	-1	IC919	N5	PIN0069	N10	PIN0260	N10	09318	J8	R575	D3	R812	K8	R97P	K2
C309	J8	C515	C11	C7M14	C2	C926	-1	IC920	N8	PIN0070	K8	PIN0265	H4	09319	J7	R576	D3	R812	K8	R97P	K2
C310	J7	C516	B9	C7M15	C2	C927	-1	IC921	N8	PIN0071	K8	PIN0266	H4	09320	J7	R577	D2	R822	K8	R5501	C5
C312	J5	C517	D10	C802	K8	C928	-1	IC922	N8	PIN0073	K8	PIN0268	C5	09324	J7	R578	D2	R823	K8	R5502	C9
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C314	K6	C519	H3	C804	K8	C930	-2	IC924	N11	PIN0075	K8	PIN0270	J10	09329	G8	R580	D10	R825	L10	SW001	P7
C315	I8	C520	B8	C805	K8	C931	-2	IC925	N10	PIN0077	L9	PIN0280	O10	09330	G8	R581	C10	R826	L10	TU701	P1
C316	J8	C522	E11	C806	L8	C932	-2	IC926	N10	PIN0078	L9	PIN0283	O11	09331	H8	R582	C10	R829	K8	X301	G9
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C333	H7	C547	H4	C820	L8	C951	-12	IC940	N10	PIN0092	K9	PIN0313	N8	09348	A2	R596	D9	R844	L7	Z0509	E9
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PRINTED CIRCUIT DIAGRAMS

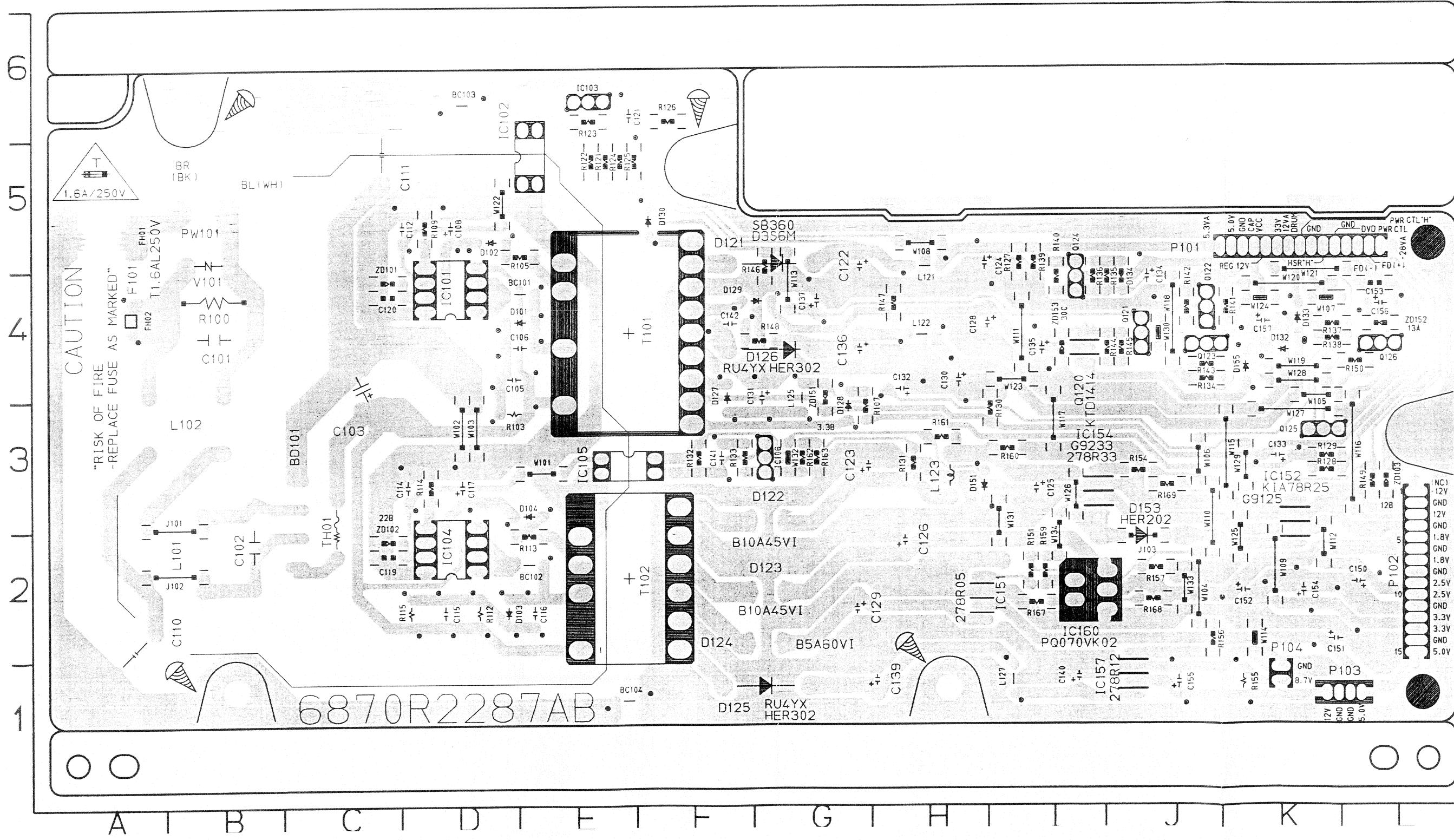
1. VCR P.C.BOARD(TOP VIEW)



2. VCR P.C.BOARD(BOTTOM VIEW)



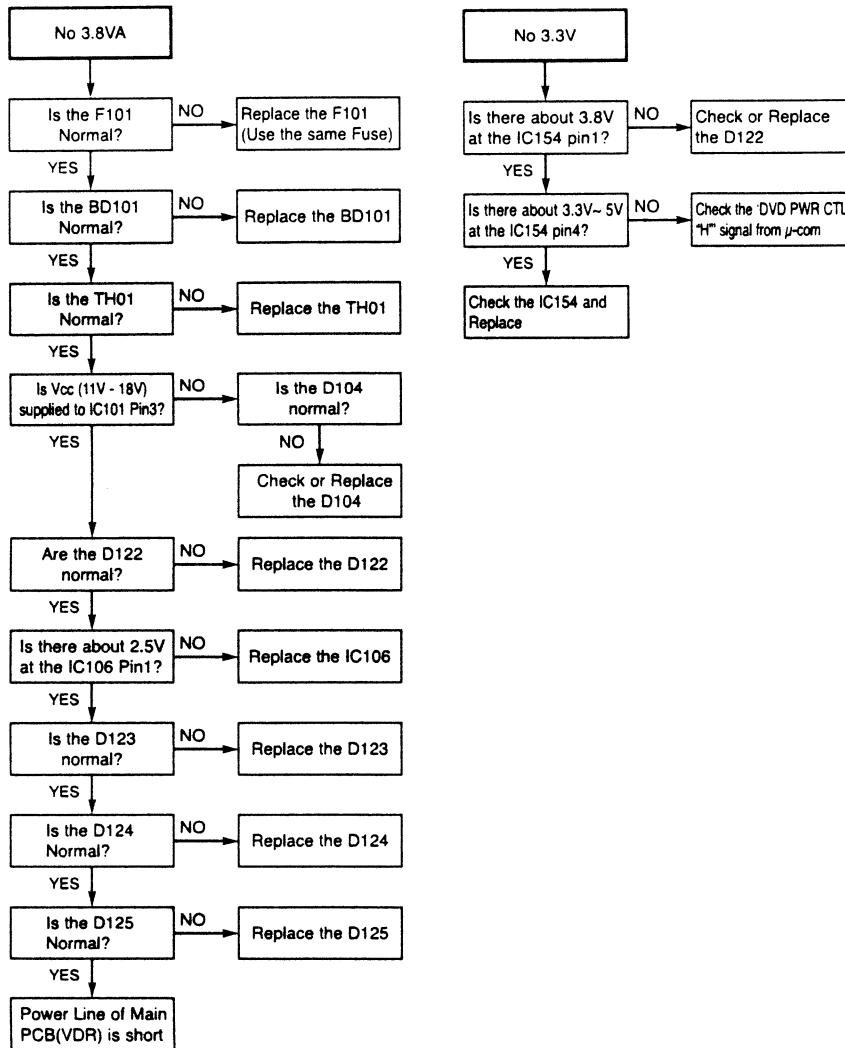
3. SMPS P.C.BOARD



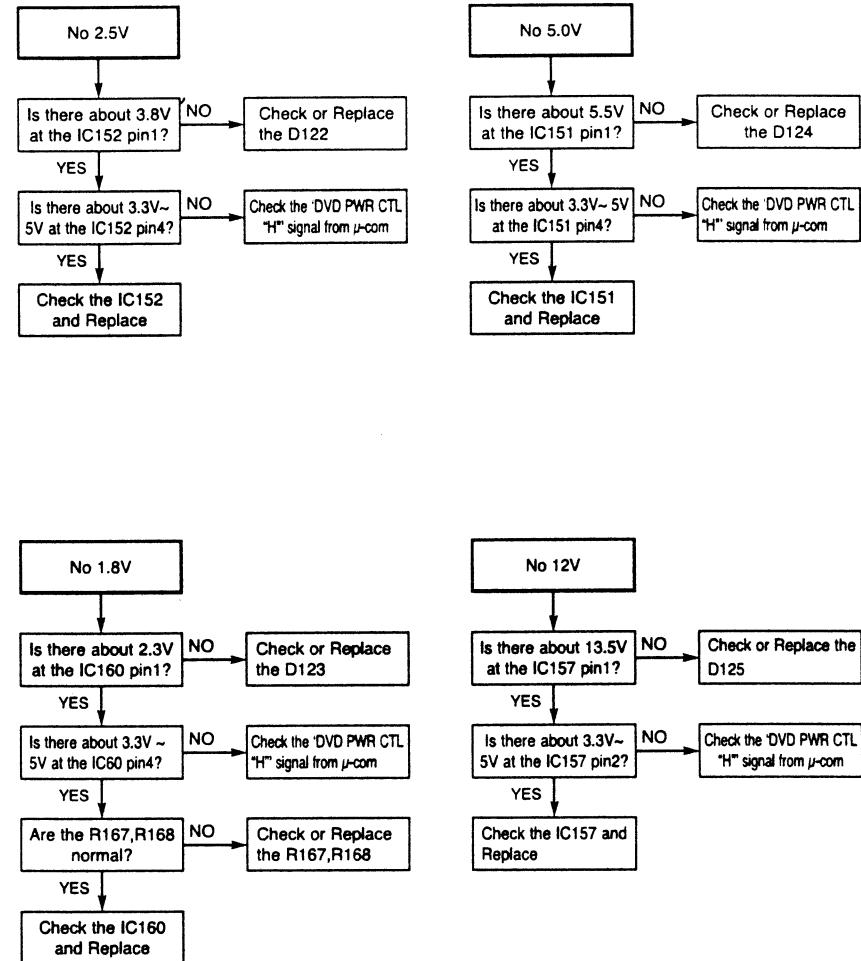
VDR PART

VDR ELECTRICAL TROUBLESHOOTING GUIDE

1. Power(SMPS) CIRCUIT

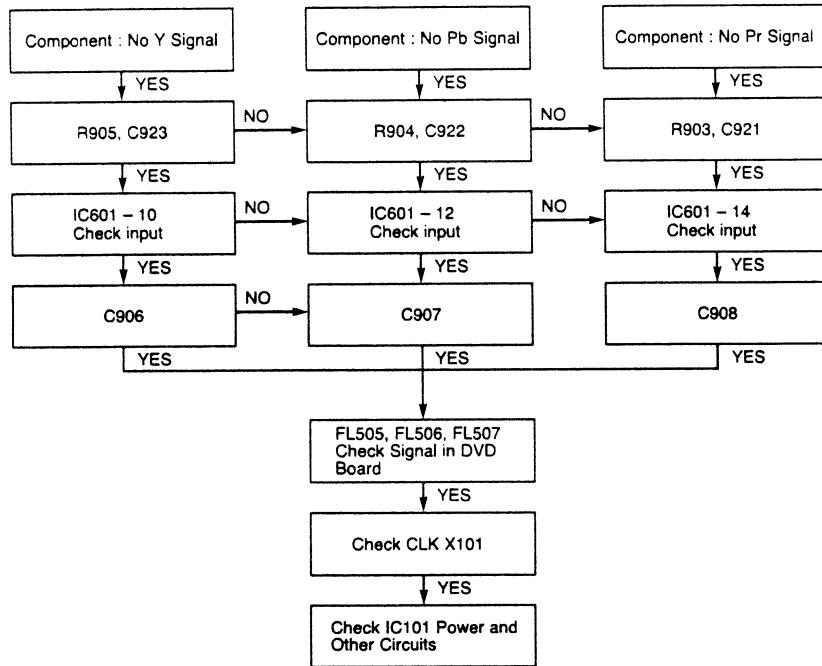


VDR ELECTRICAL TROUBLESHOOTING GUIDE



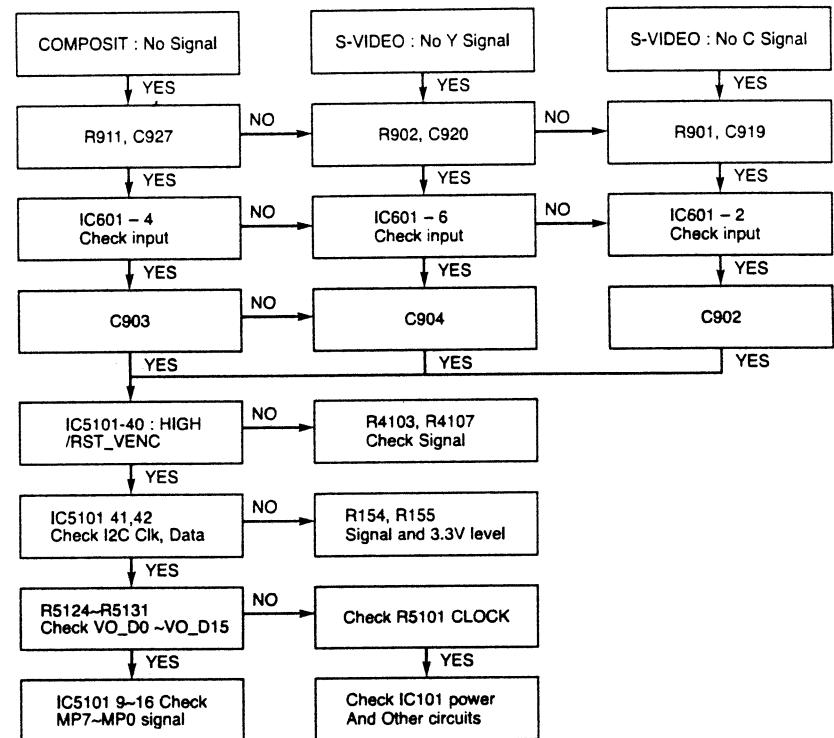
VDR ELECTRICAL TROUBLESHOOTING GUIDE

2. No Component video signal when playing DISC



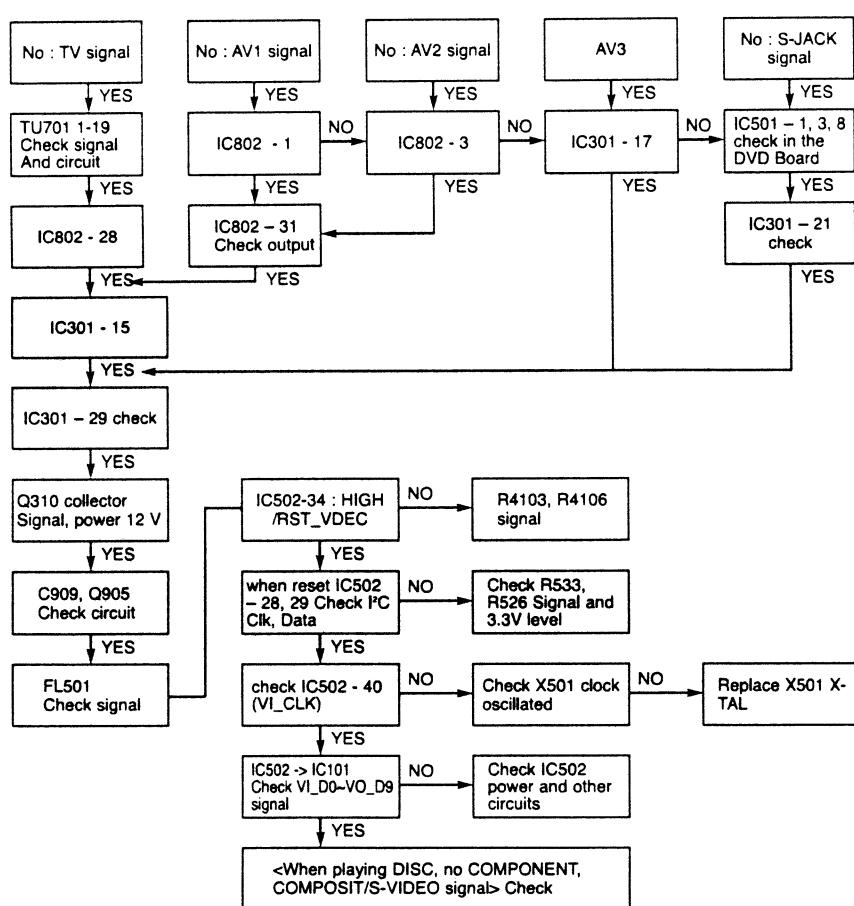
VDR ELECTRICAL TROUBLESHOOTING GUIDE

3. No COMPOSITE / S-VIDEO signal when playing DISC



VDR ELECTRICAL TROUBLESHOOTING GUIDE

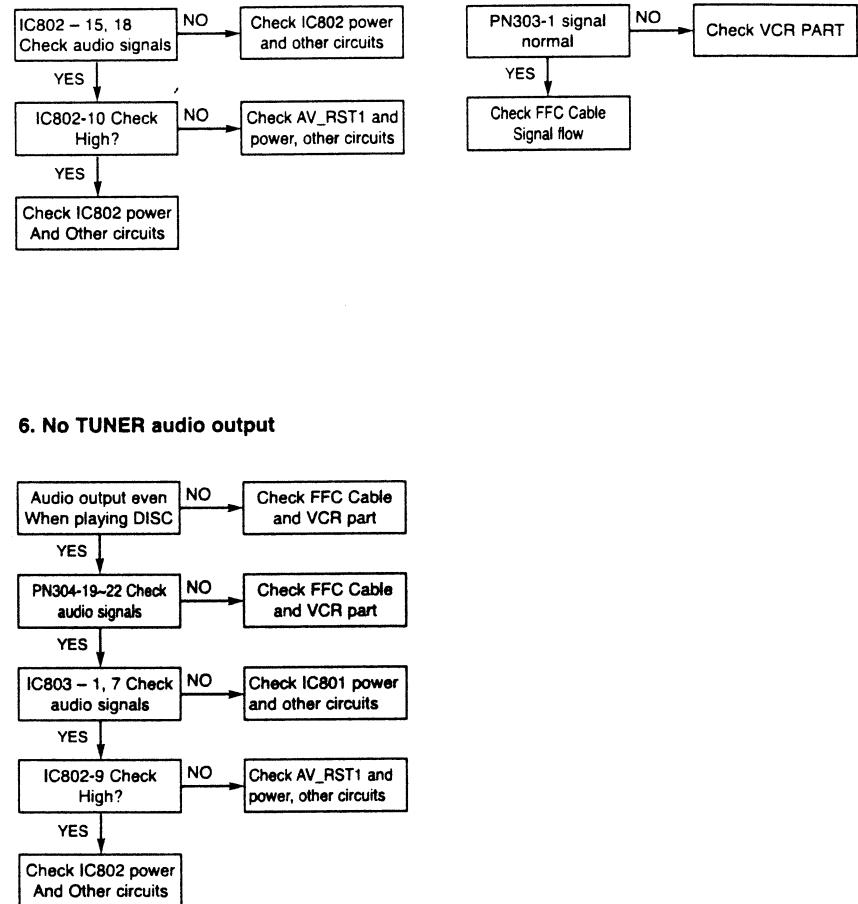
4. No TV, External Input video signal



VDR ELECTRICAL TROUBLESHOOTING GUIDE

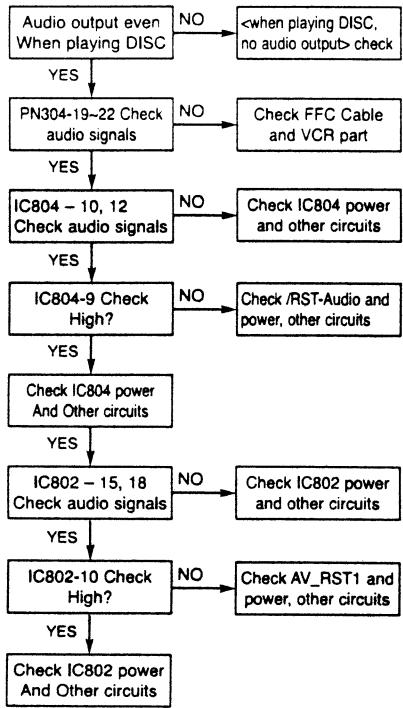
5. When playing DISC, no audio output

7. No OPTICAL / DIGITAL output

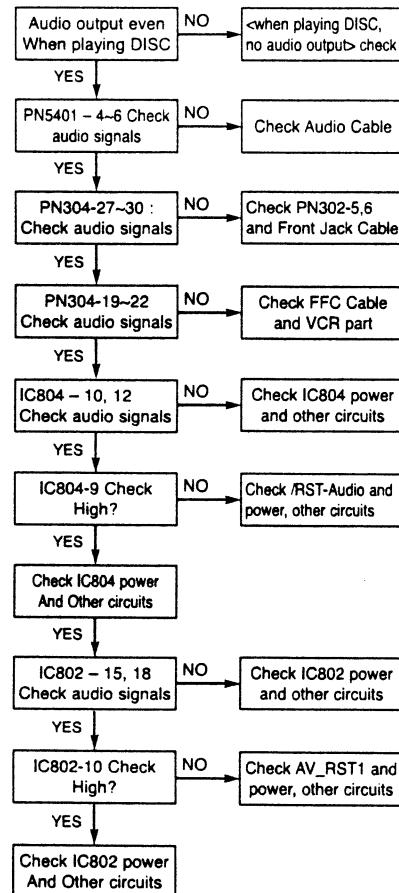


VDR ELECTRICAL TROUBLESHOOTING GUIDE

8. No External Input 1, 2 audio

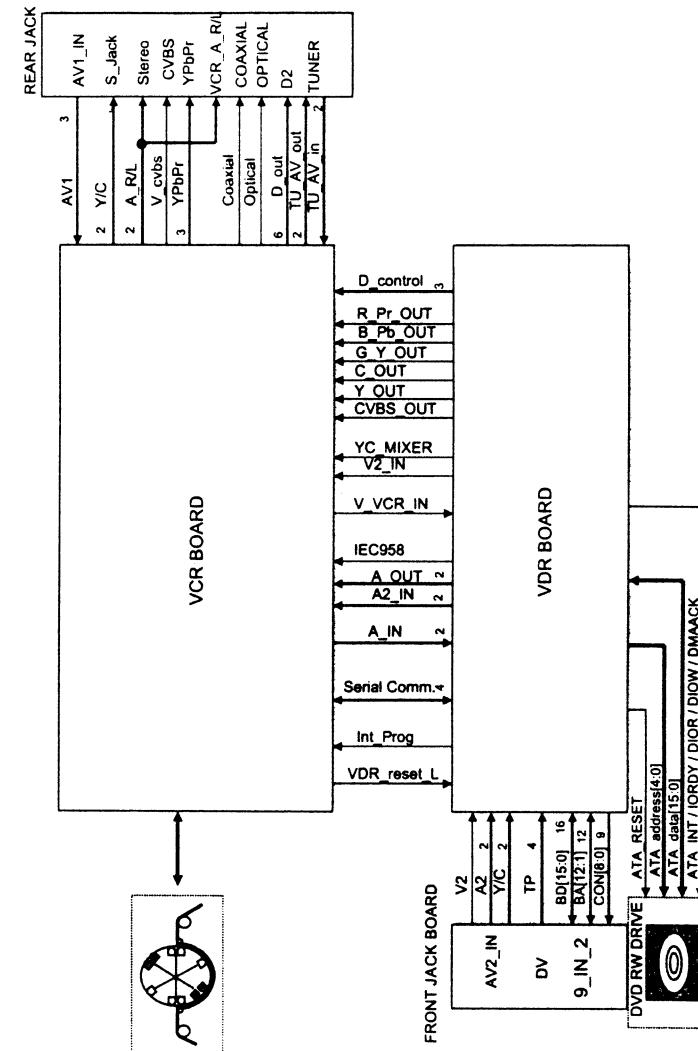


9. No External Input 3 audio

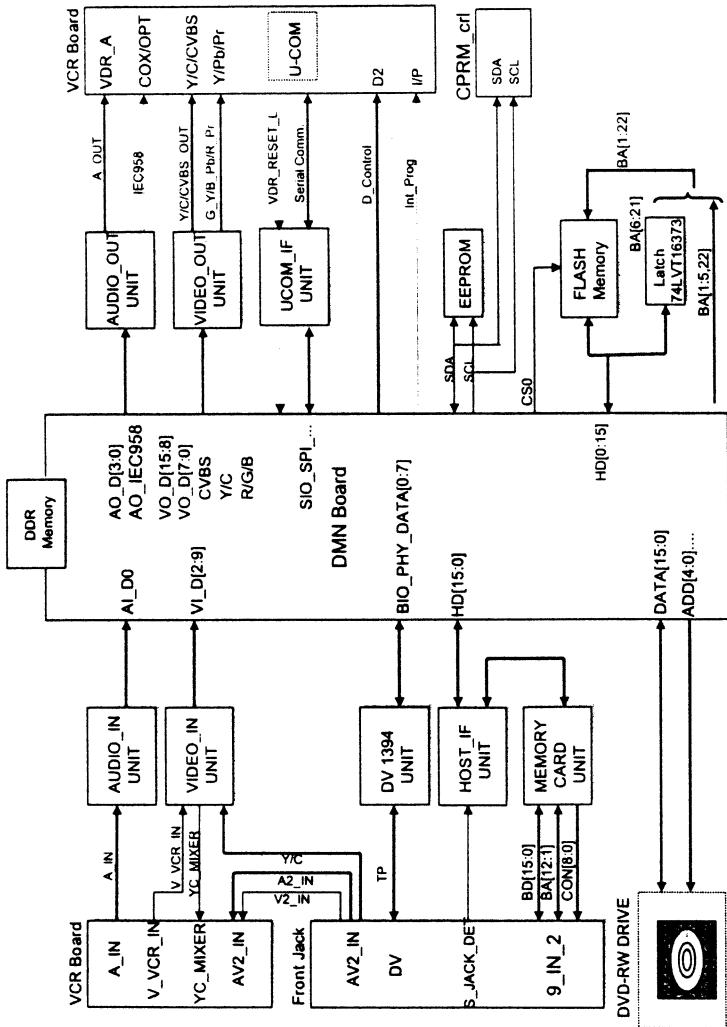


BLOCK DIAGRAMS

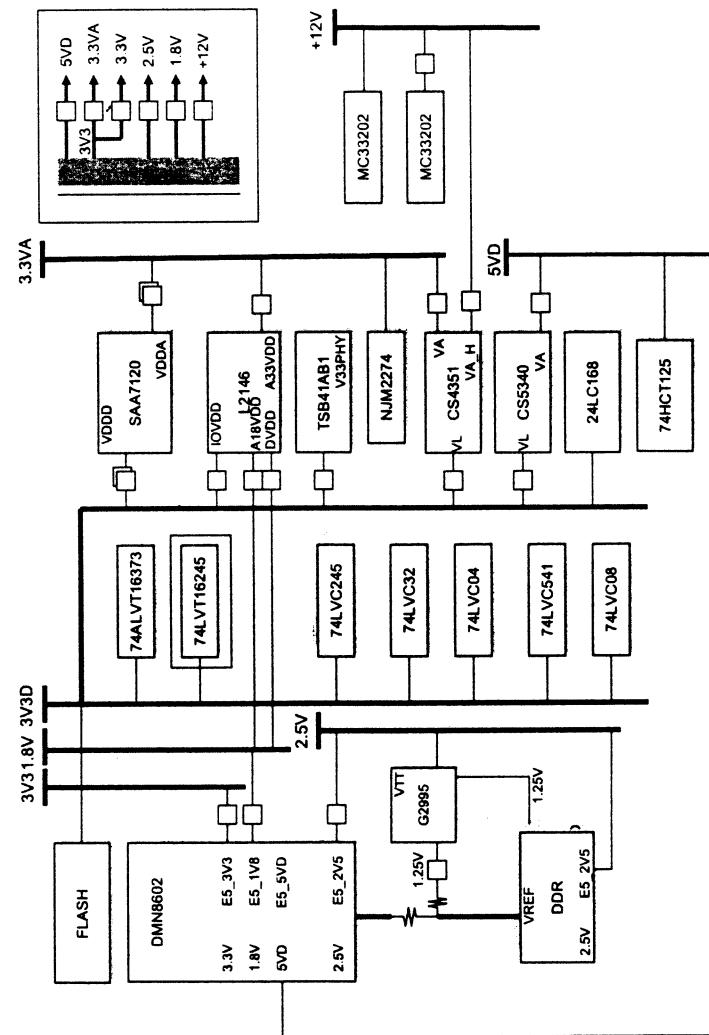
1. VDR SET TOTAL BLOCK DIAGRAM



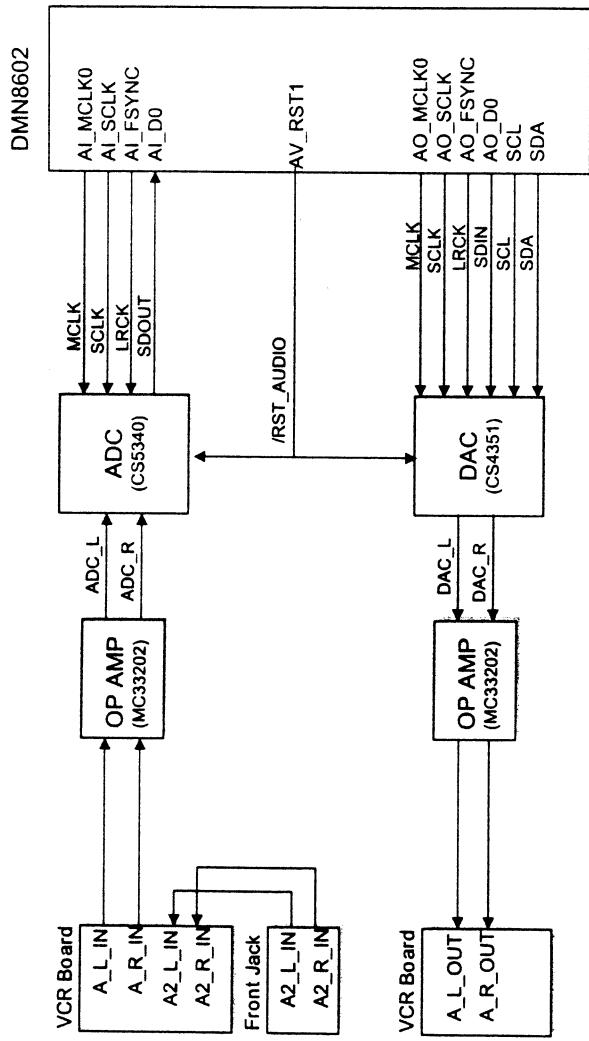
2. VDR MAIN H/W BLOCK DIAGRAM



3. POWER BLOCK DIAGRAM

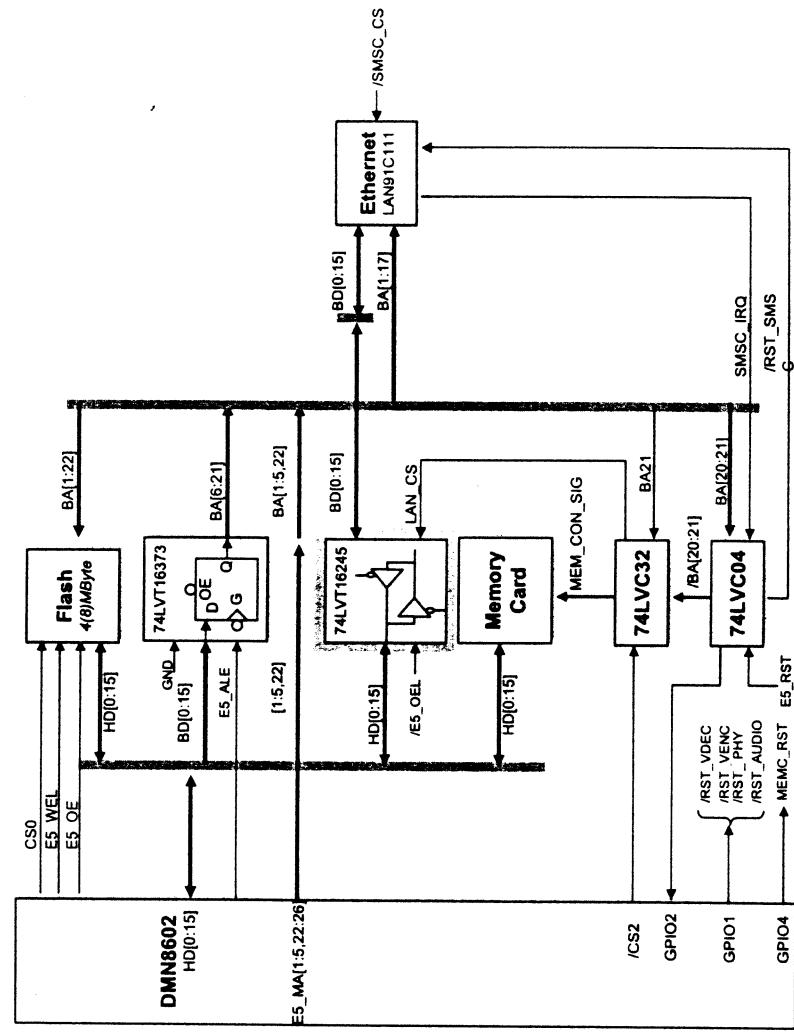


4. AUDIO IN/ OUT BLOCK DIAGRAM



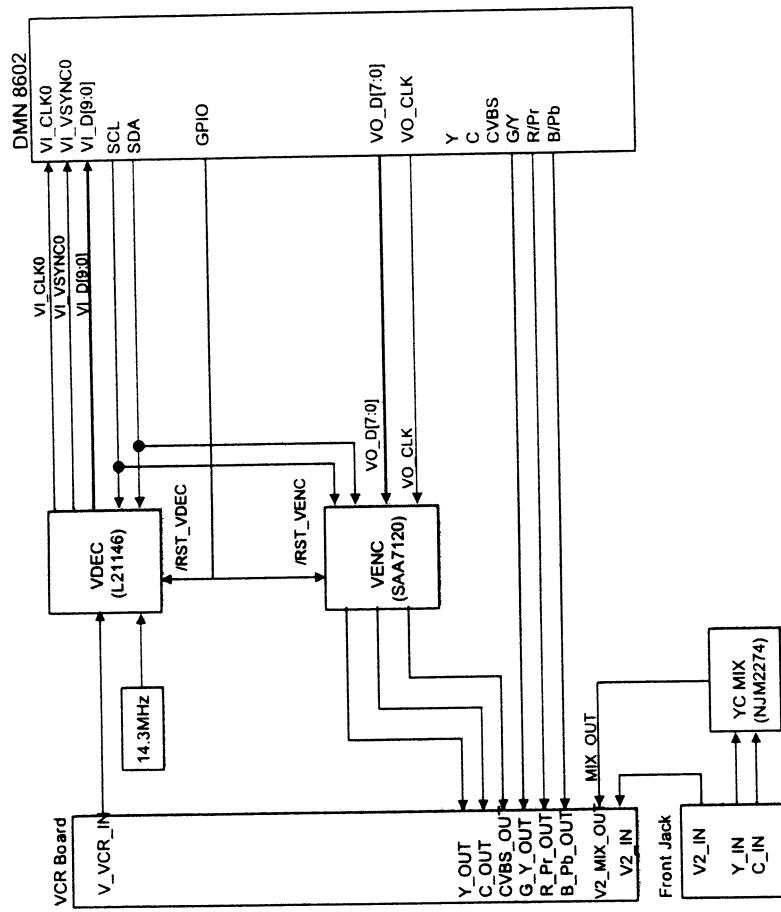
3-79

5. CPU & CONTROL REGISTER BLOCK DIAGRAM

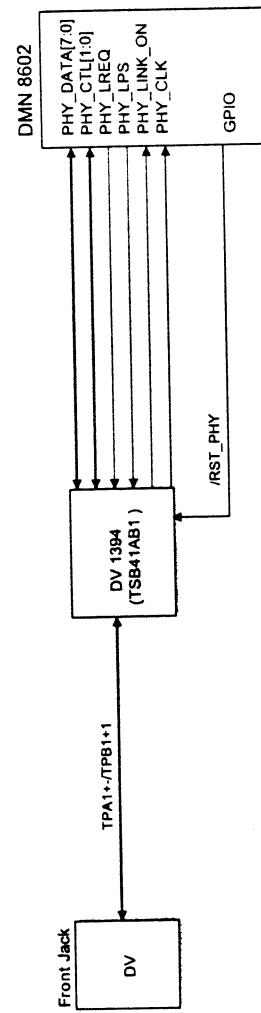


3-80

6. VIDEO IN/ OUT BLOCK DIAGRAM

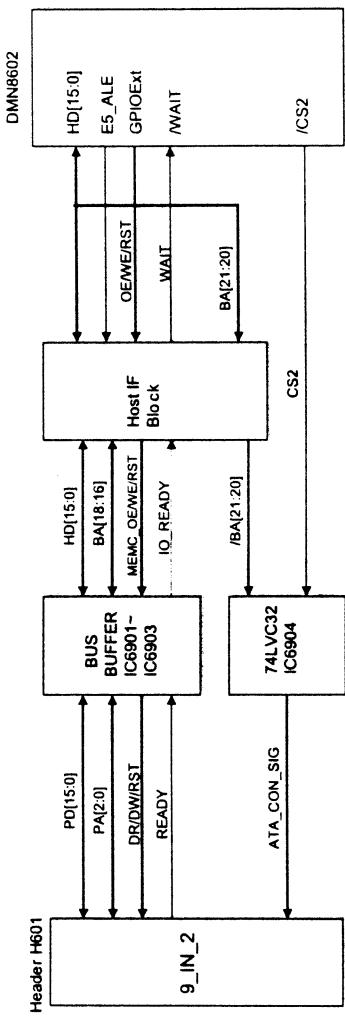


7. DV 1394 IN/OUT BLOCK DIAGRAM

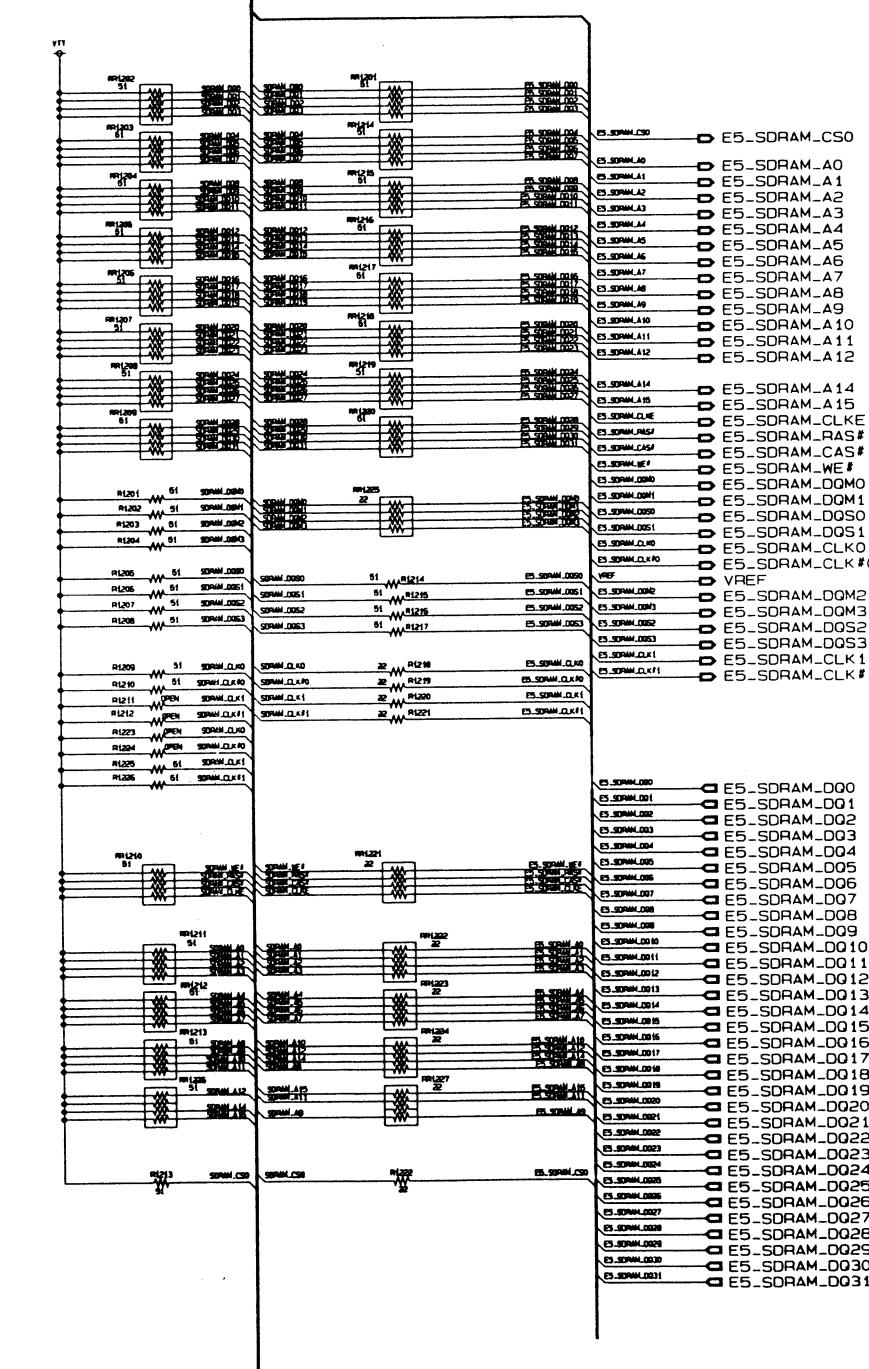
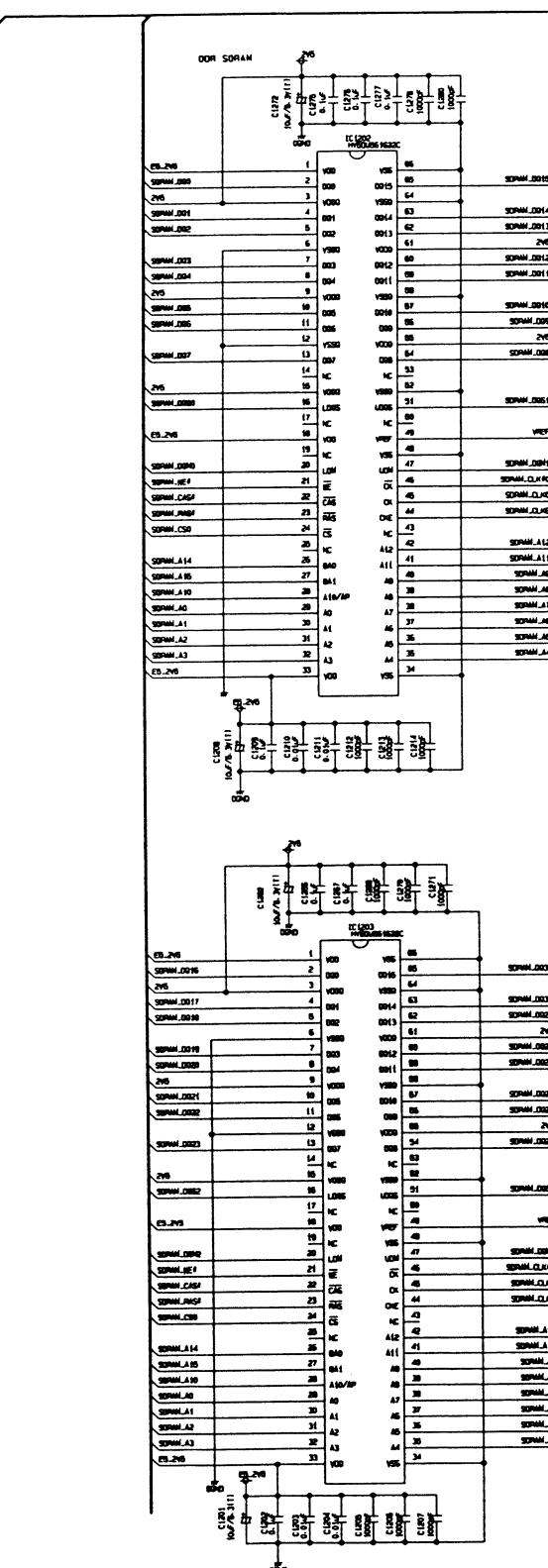
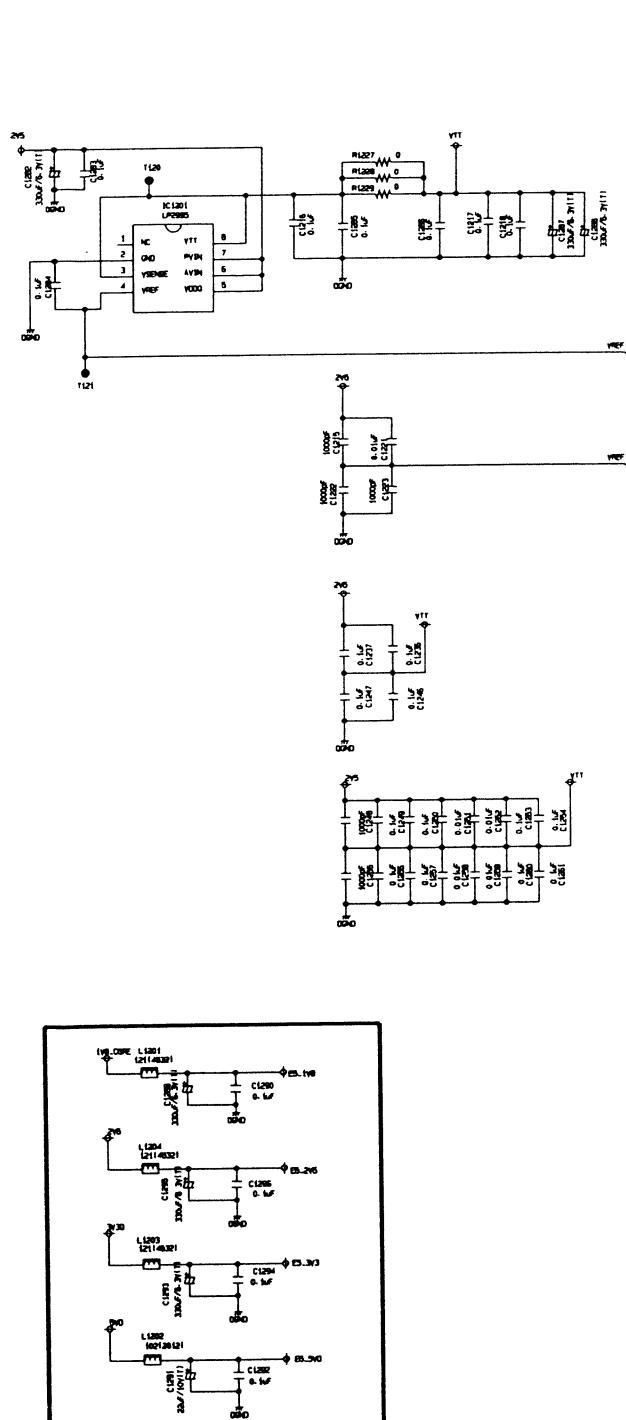


MEMO

8. MEMORY CARD IN/ OUT BLOCK DIAGRAM



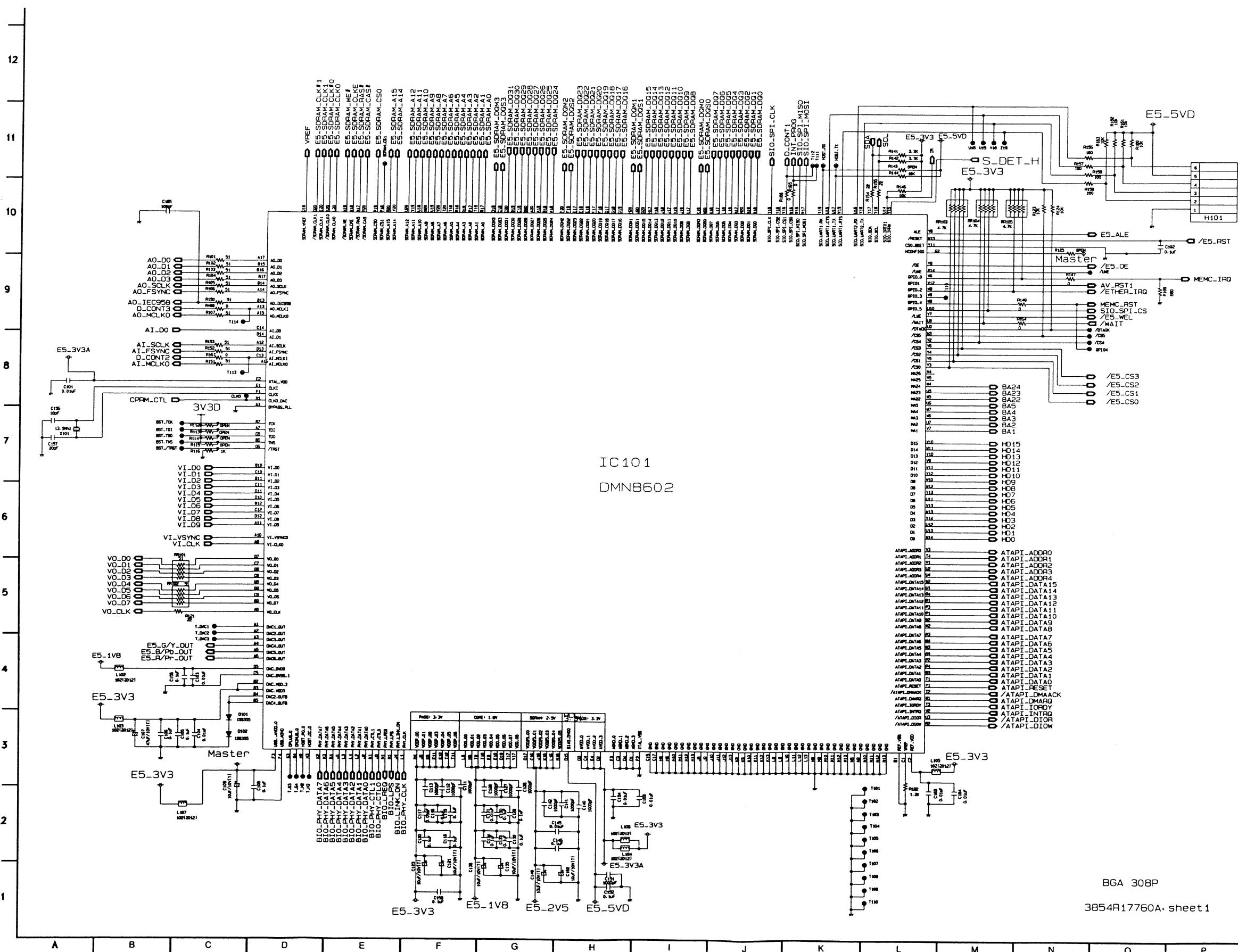
2. DDR & B TO B CONNECTOR CIRCUIT DIAGRAM



3854R17760A· sheet2

CIRCUIT DIAGRAMS

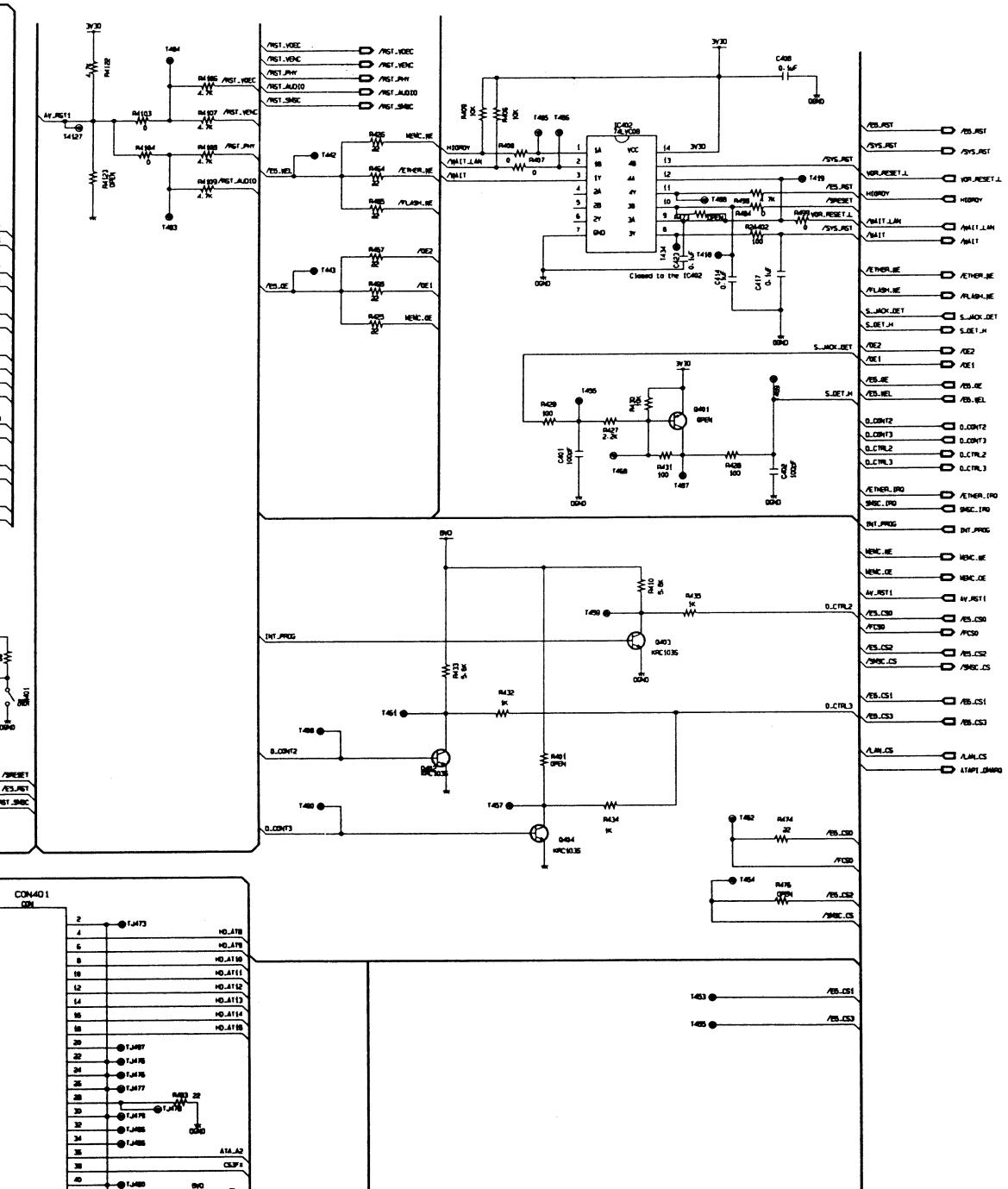
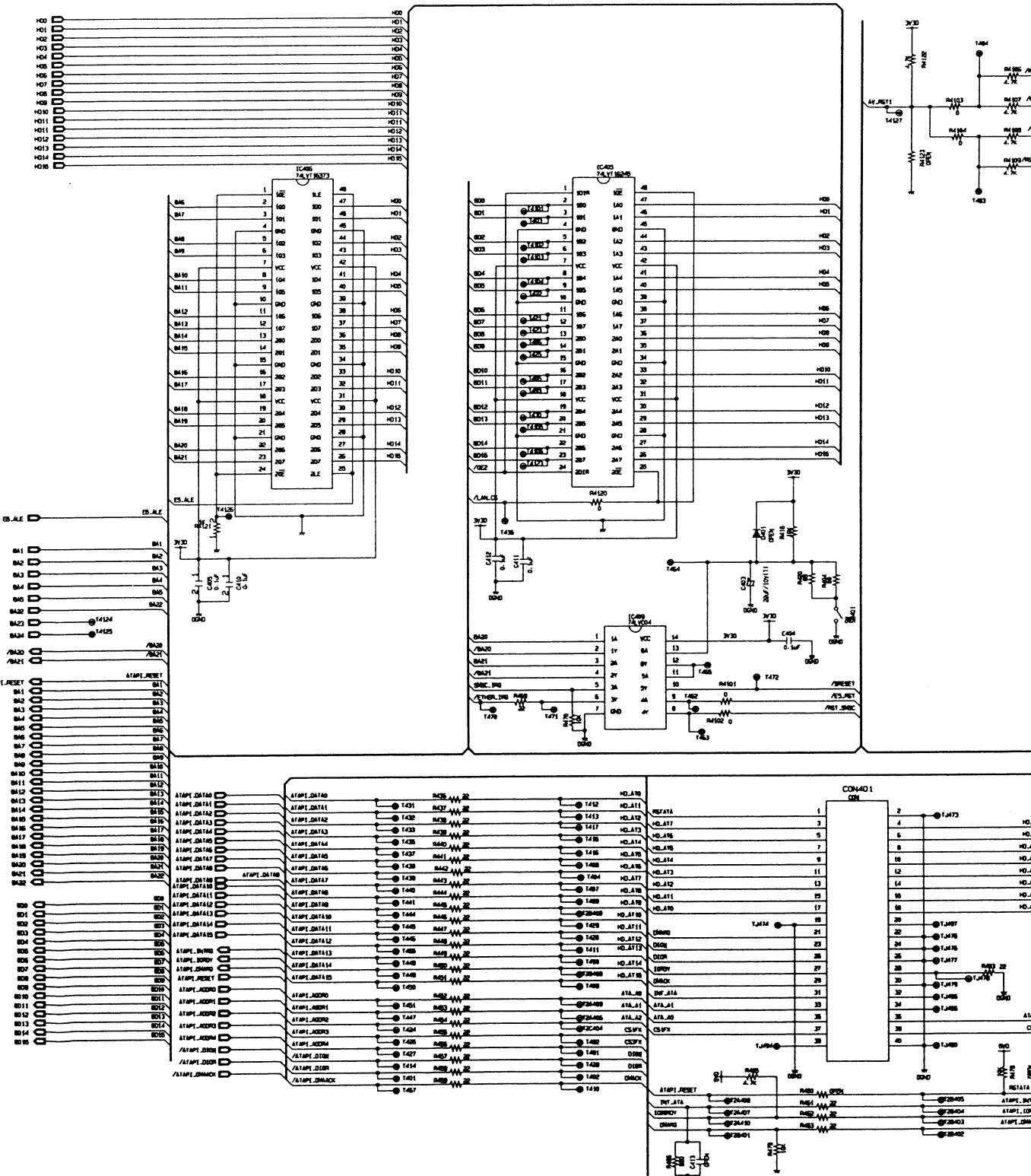
1. BGA 308P CIRCUIT DIAGRAM



3-84

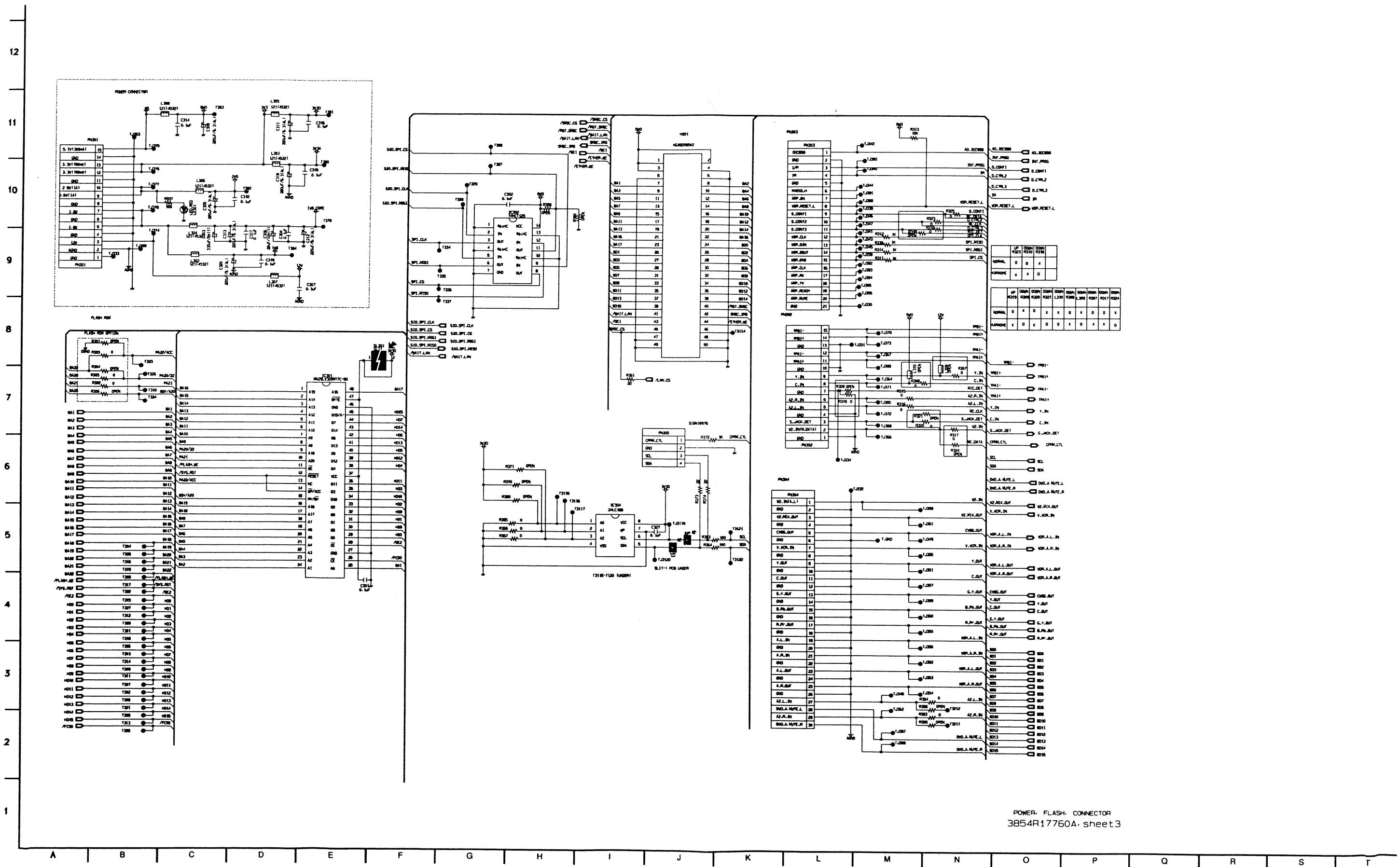
3-85

4. RST, CONTROL/STATUS_REG., ATAPI, HOST_CPLD, LATCH CIRCUIT DIAGRAM

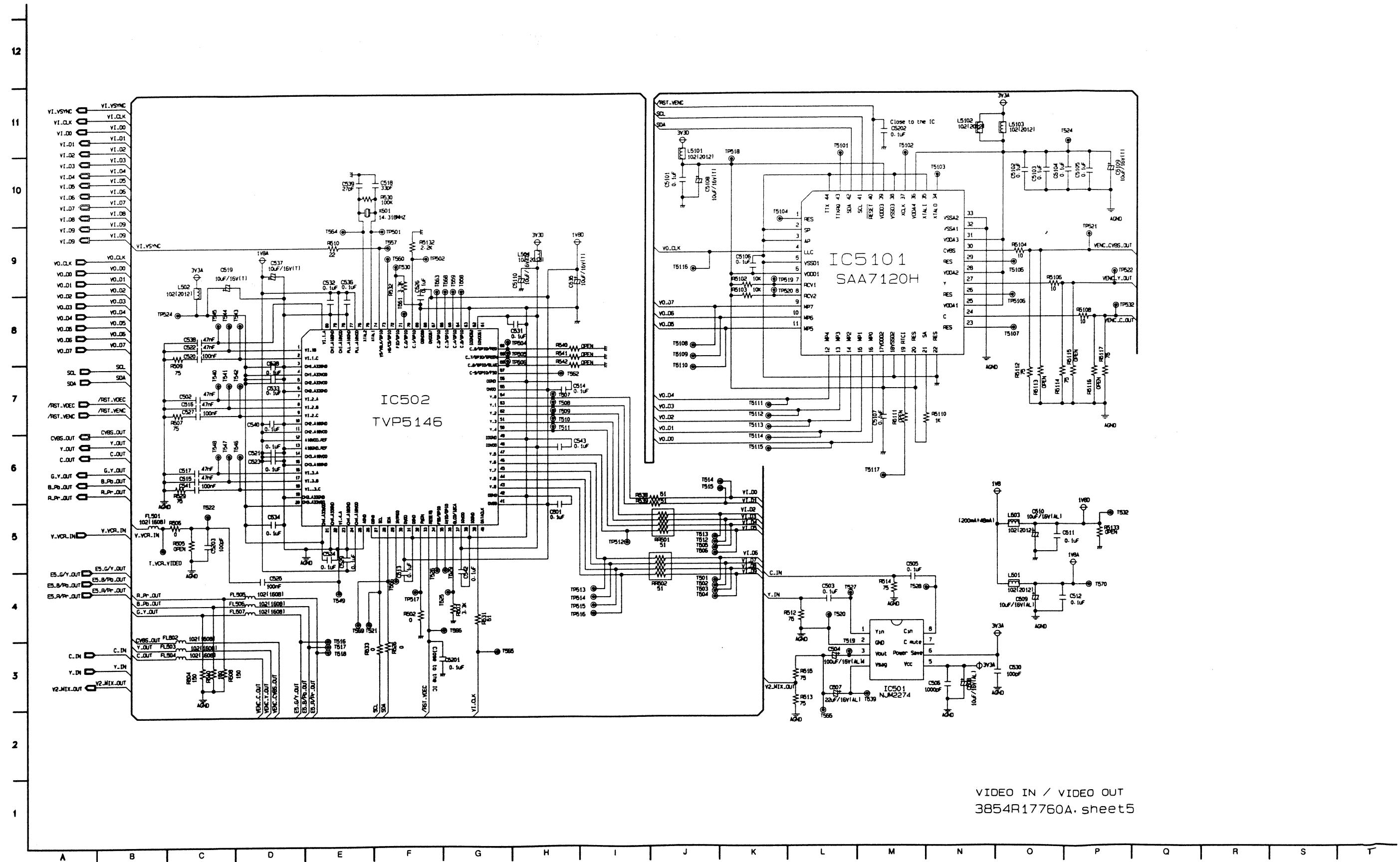


RST. CONTROL. ATAPI. HOST_BUS. LATCH
3854R17760A. sheet 4

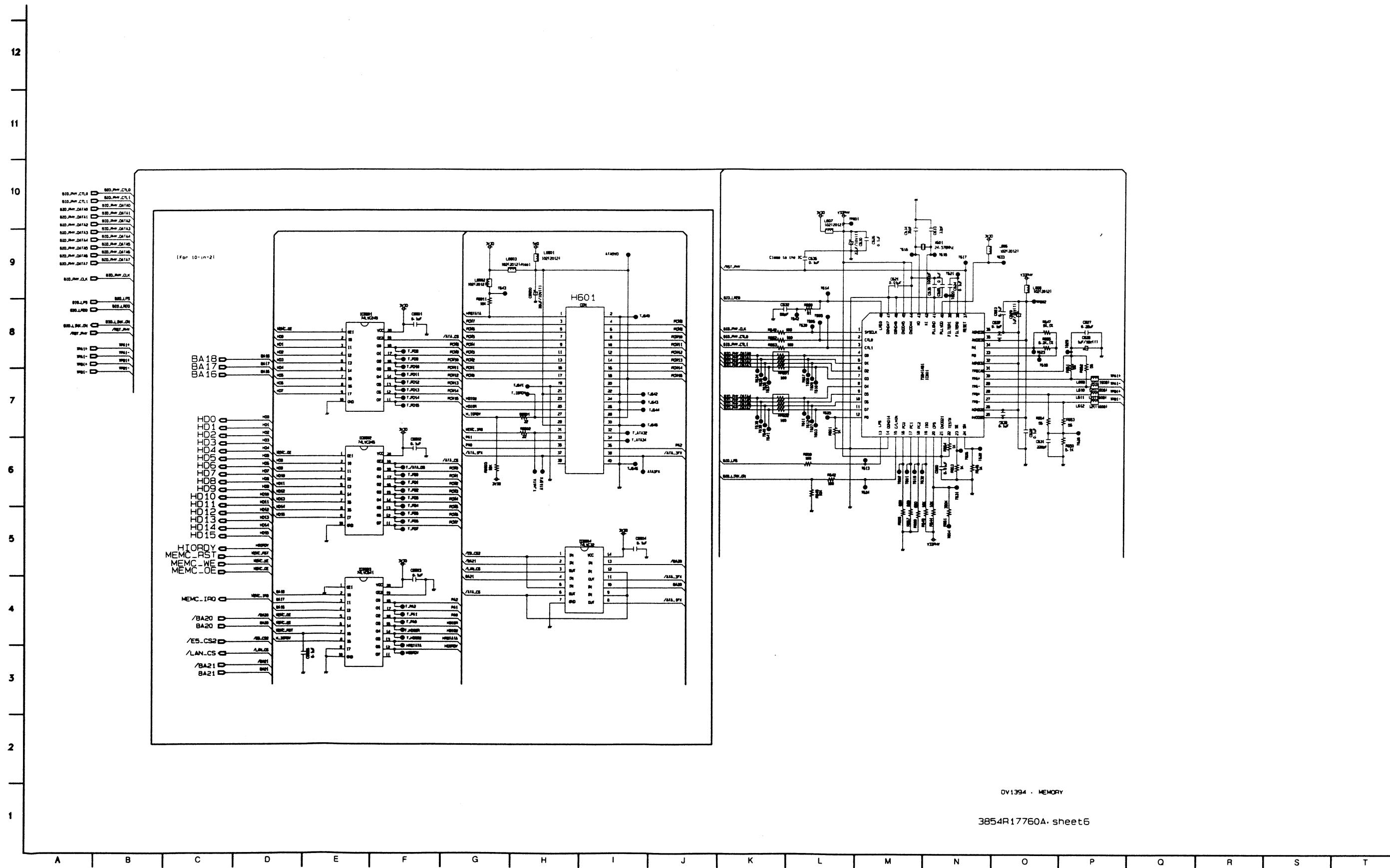
3. POWER, FLASH, CONNECTOR CIRCUIT DIAGRAM



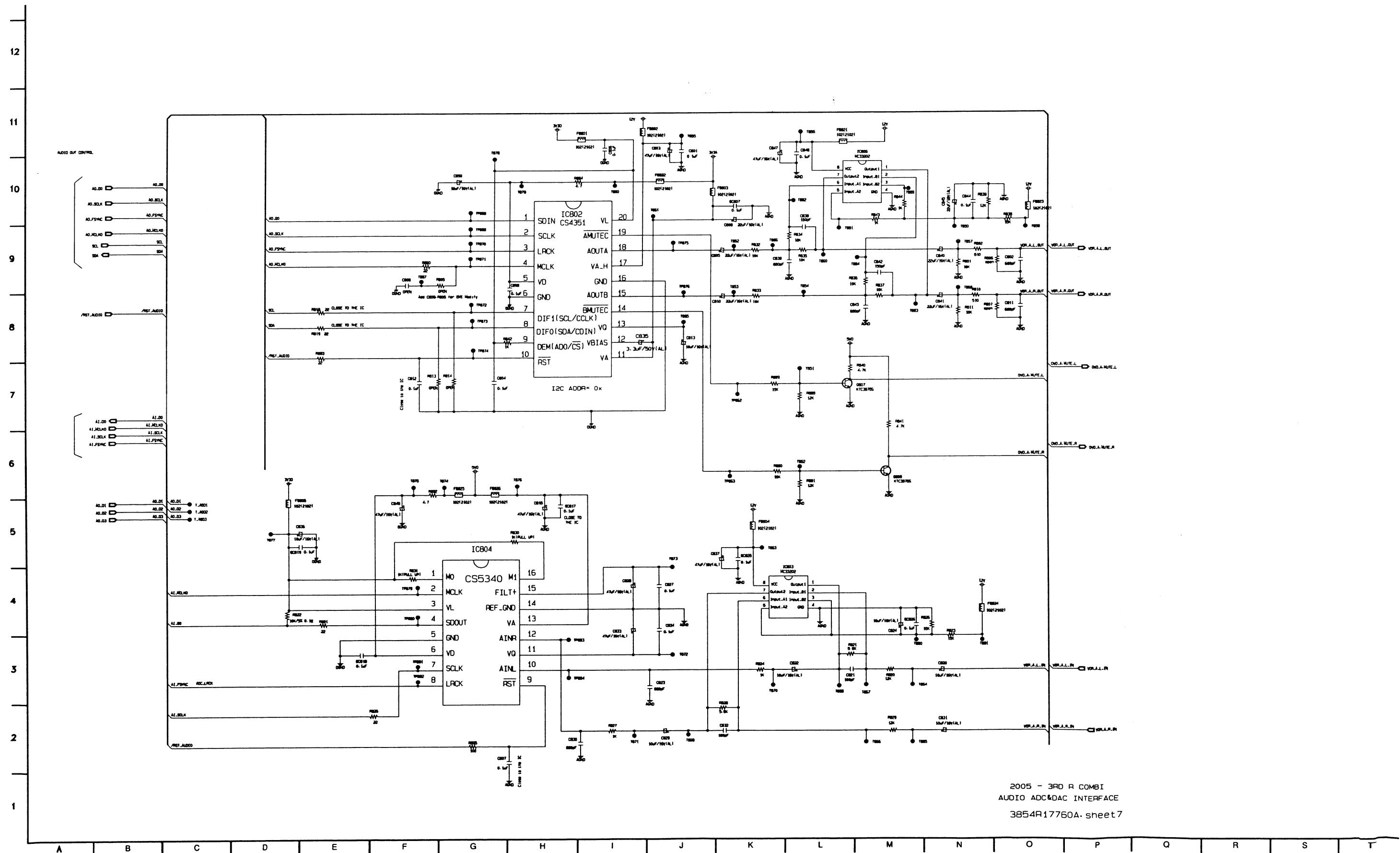
5. VIDEO_IN, VIDEO_OUT CIRCUIT DIAGRAM



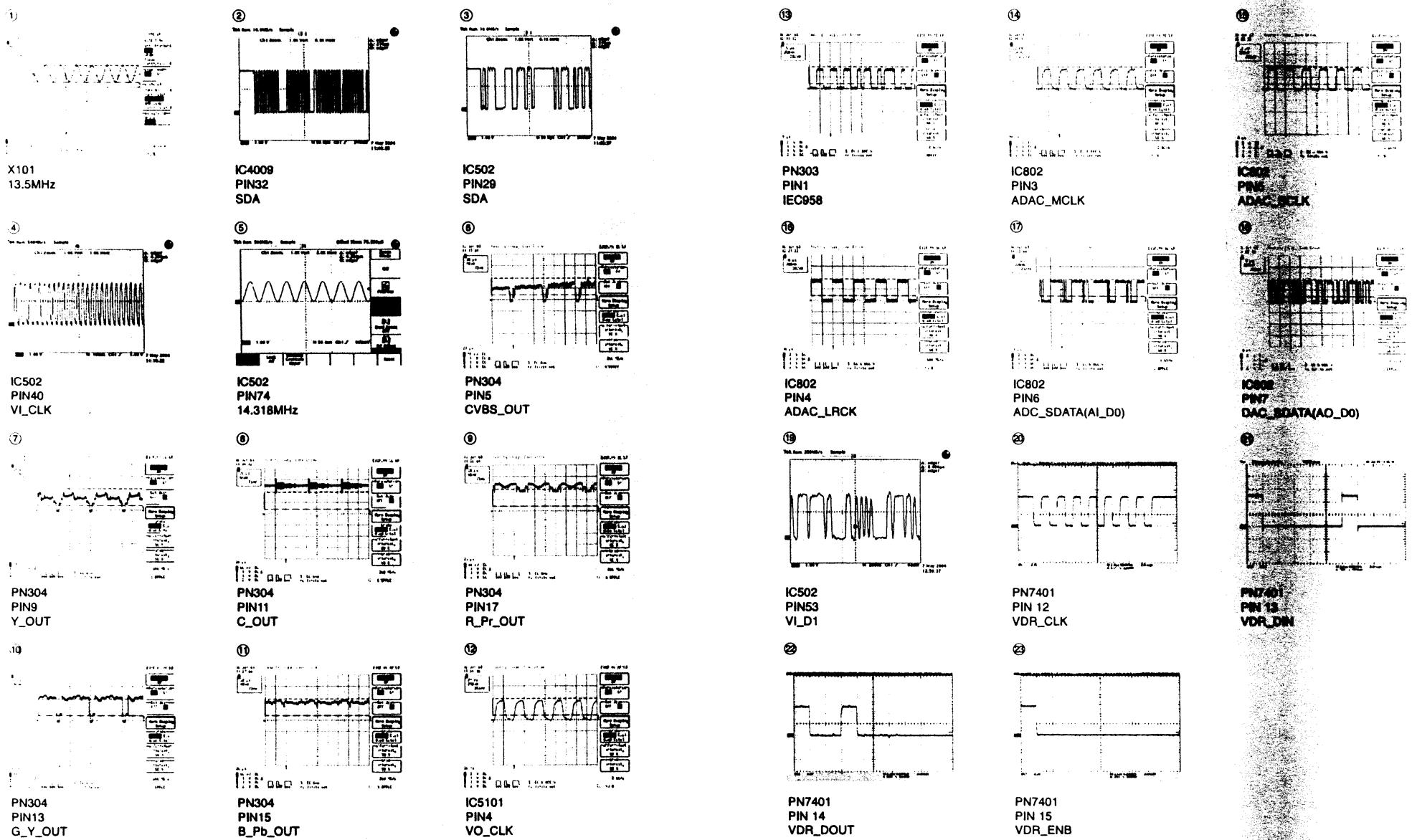
6. DV1394, HDMI CIRCUIT DIAGRAM



7. AUDIO IN/OUT CIRCUIT DIAGRAM



• WAVEFORMS



3-88

3-89

• CIRCUIT VOLTAGE CHART

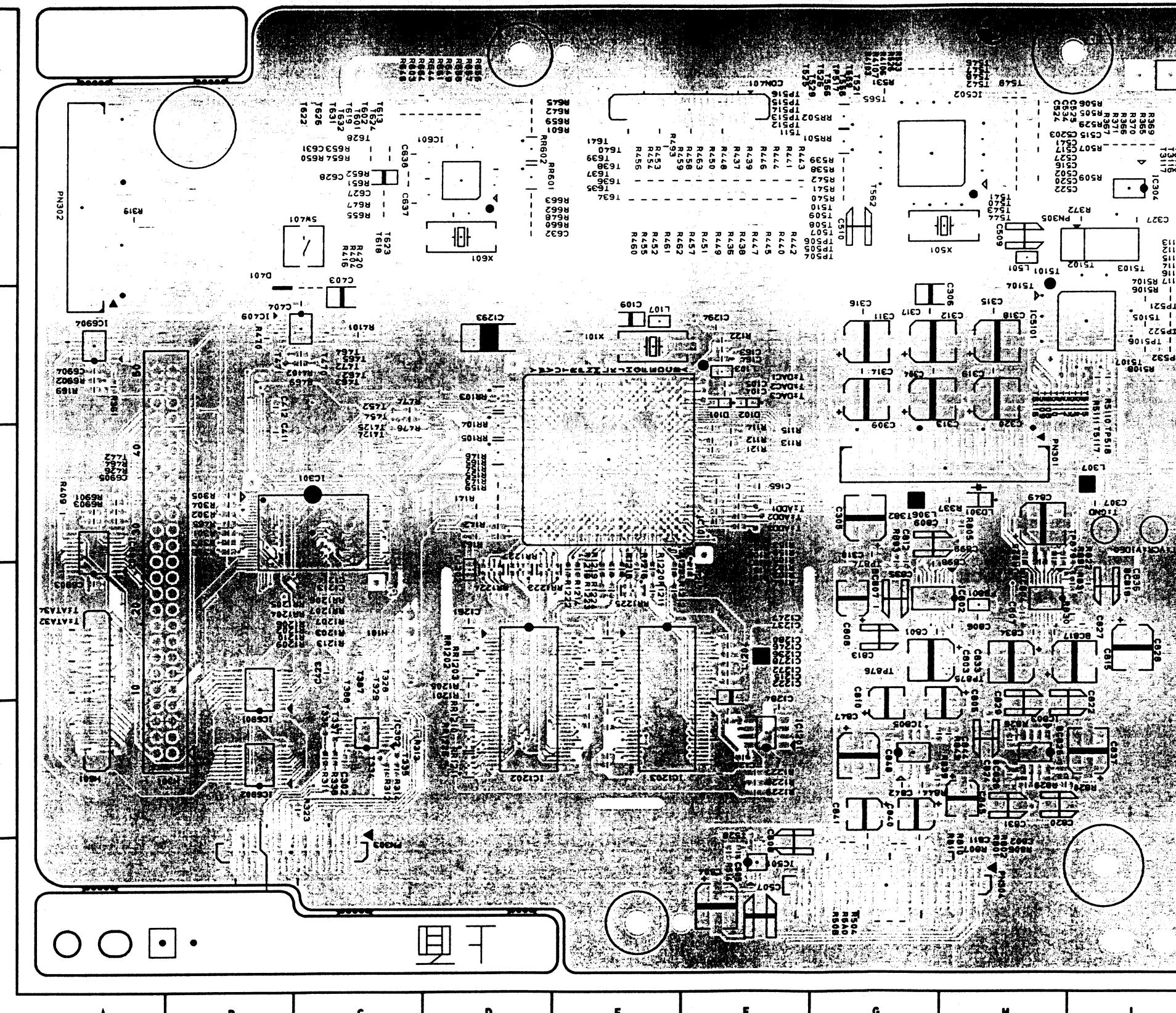
MODE PIN NO.	EE	PB	REC
IC1201			
1	0	0	0
2	0	0	0
3	1.02	1.02	1.23
4	1.02	1.01	1.23
5	2.37	2.48	2.47
6	2.34	2.48	2.47
7	2.34	2.48	2.47
8	1.08	1.22	1.22
IC302			
1	0	0	0
2	3.14	3.29	3.27
3	4.88	4.98	4.98
4	0	0	0
5	0	0	0
6	4.88	0.01	0.01
7	0	0	0
8	4.84	3.97	3.97
9	3.22	2.84	2.84
10	0	0	0
11	4.88	4.2	4.2
12	4.96	4.3	4.3
13	0	0	0
14	4.84	4.97	4.97
IC402			
1	3.14v	3.28	3.29
2	3.14v	3.32	3.32
3	3.14v	3.29	3.29
4	0.04	0.04	0
5	0	0.04	0
6	0	0	0
7	0	0	0
8	3.14	3.29	3.29
9	3.14	5.00	5.9
10	3.14	3.28	3.29
11	3.14	3.29	3.29
12	4.88	5.00	5.09
13	3.14	3.29	3.29
14	3.14	3.29	3.29
IC405			
1	3.28	3.28	3.29
2	3.31	0.19	0.19
3	3.22	0.19	0.19
4	0	0	0
5	0.19	0.19	0.19
6	0.19	0.19	0.19
7	3.29	3.29	3.29
8	0.19	0.19	0.19
9	0.19	0.19	0.19
10	0	0	0
11	0.19	0.19	0.19
12	0.19	0.19	0.19
13	0	0.04	0.04
14	0	0.04	0.04
15	0	0	0
16	0	0.04	0.04
17	0	0.04	0.04
18	0	0.04	0.04
19	0	0	0
20	3.22	3.255	3.255
21	3.22	3.255	3.255
22	0	0	0
23	0	0.01	0
24	0	0	0
25	0	0.01	0.01
26	0	0	0
27	0	0	0
28	0	0	0
29	0	0	0
30	0	0	0
31	0	0	0
32	0	0	0
33	0	0	0
34	0	0	0
35	0	0	0
36	0	0	0
37	0	0	0
38	0	0	0
39	0	0	0
40	0	0	0
41	0	0	0
42	3.16	3.29	3.29
43	0	0	0
44	0	0	0
45	0	0	0
46	0	0	0
47	0	0	0
48	0	0	0.01
IC501			
1	0	0.001	0.001
2	0	0.002	0.004
3	0	0	0
4	3.22	3.256	3.256
5	3.22	3.256	3.255
6	0	0	0
7	0	0.002	0.002
8	0	0.001	0.002
9	0	0.001	0.002
10	0	0	0
11	1.78v	1.854	1.851
12	1.78	1.854	1.851
13	0	0	0
14	1.78	1.854	1.851
15	0	0	0
16	0	0.002	0.002
17	0	0.001	0
18	0	0.002	0.002
19	0	0	0
20	3.22	3.255	3.255
21	3.22	3.255	3.255
22	0	0	0
23	0	0.001	0
24	0	0	0
25	0	0	0
26	0	0	0
27	0	0	0
28	0	0	0
29	0	0	0
30	0	0.796	0.872
31	3.22	3.216	3.194
32	0	0.006	0.006
33	0	0.007	0.008
34	3.24	3.185	3.165
35	0	0.006	0.007
36	3.24	3.207	3.19
37	0	0.009	0.01
38	0	0.006	0.007
39	3.23	3.204	3.188
40	3.24	3.212	3.199
41	3.24	3.21	3.197
42	3.24	3.209	3.195
43	20m	0.008	0.011
44	20m	0.005	0.007
45	0	0	0
46	0	0	0
47	0	0	0
48	2.88	4.88	4.88
IC601			
1	2.64	2.64	1.62
2	3.42	3.52	1.06
3	3.42	3.48	0.01
4	3.54	3.58	0.5
5	3.56	3.62	0.5
6	0	0	0.02
7	0	0	0.02
8	0	0	0.02
9	0	0	0.02
10	0	0	0.02
11	0	0	0.02
12	0	0	0
13	3.26	3.27	3.26
14	0	0	0
15	0	0	0
16	60	0	0
17	0	0	0
18	0	0	0
19	3.04	3.24	3.23
20	3.04	3.26	3.11
21	3.04	3.26	3.26
22	3.04	3.2	3.25
23	0	0	0
24	0	0	0
25	3.24	3.24	3.26
26	0	0	0
27	0	0	1.83
28	0	0	1.83

3-100

3-101

PRINTED CIRCUIT DIAGRAMS

1. VDR P.C.BOARD(TOP VIEW)



IC502_TVR5146

IC5101_SAA7224

IC1203_HY5DU561622C

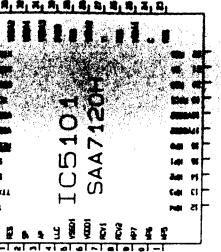
IC1202_74HCT125

IC1202_HY5DU561622C

IC1203_HY5DU561622C

IC5101_SAA7224

IC502_TVR5146

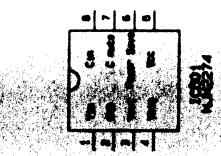
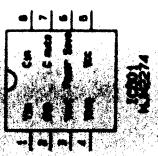


IC201_LIP2895

IC304_24LC168

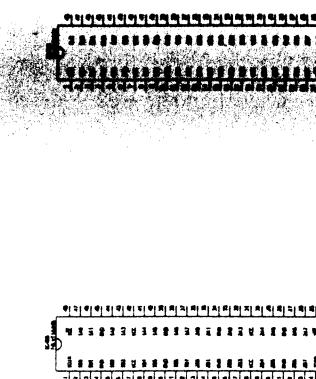
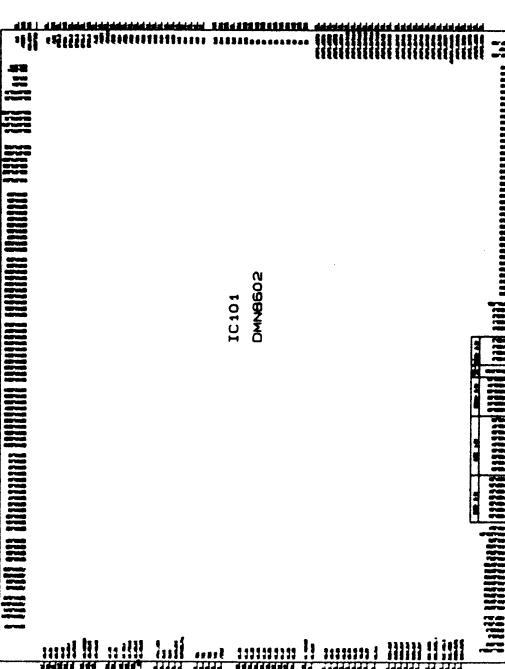
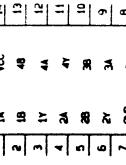
IC302_74HCT125

IC406_74LVT16373



IC405_74LVT16245

IC402_74LVC08



• IC BLOCK DIAGRAMS

3-105

3-104

IC802_CS4351

IC804

IC801_TS841AB1

IC6902_74LVC245

IC6903_Mc33202

IC6904_74LVC32

IC6905_MC33202

IC6906_74LVC245

IC6907_74LVC245

IC6908_74LVC245

IC6909_74LVC245

IC6910_74LVC245

IC6911_74LVC245

IC6912_74LVC245

IC6913_74LVC245

IC6914_74LVC245

IC6915_74LVC245

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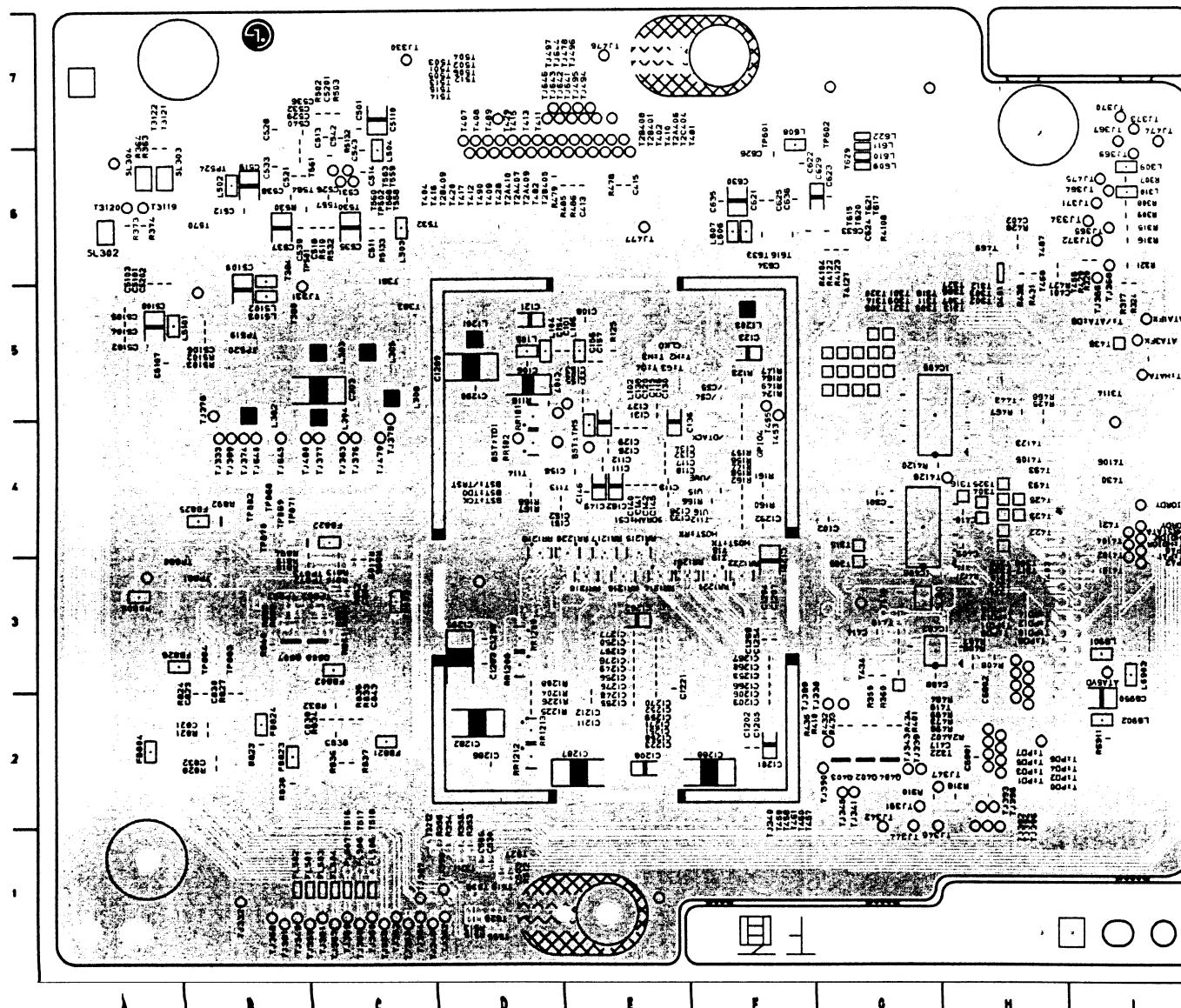
LOCATION GUIDE

BC807G3	C403 C5	C829 H2	L501 H6	R152 F4	R447 F6	R5A0 G1	RR1202 D3	T440 F6	T541 H6	T858 G1
BC817H3	C404 C5	C831 H2	LD301H4	R153 F4	R448 F6	R601 D7	RR1203 D3	T441 F6	T542 H6	T864 I2
BC818H3	C411 B4	C833 H3	PN301H4	R154 D4	R449 F6	R603 C7	RR1204 E3	T442 A4	T543 H6	T865 H2
BC819I3	C412 B5	C834 H3	PN302A6	R155 D4	R450 F6	R642 D7	RR1205 E3	T444 F6	T544 H6	T872 H3
BC825H2	C423 C3	C835 G3	PN303B1	R159 D4	R451 F6	R644 D7	RR1206 E3	T445 F6	T546 H7	T873 I3
BC826H2	C502 H6	C836 I3	PN304G1	R163 D4	R452 F6	R645 D7	RR1207 E3	T446 F6	T547 H7	T875 H4
C104 F5	C504 F1	C837 I2	PN305I6	R165 D4	R453 F6	E6 R646 C7	RR1210 D2	T447 E6	T548 H7	T876 H3
C105 F5	C505 G2	C840 G2	R101 F4	R169 A5	R454 E6	E6 R647 C6	RR1211 D2	T448 F6	T549 H7	T877 I3
C109 E5	C507 F1	C841 G2	R102 F4	R301 B4	R455 E6	E6 R648 D6	RR1223 D3	T449 F6	T556 G7	T878 H3
C1209E2	C508 F1	C842 G2	R103 F4	R302 B4	R456 E6	E6 R649 D7	RR1224 D3	T450 F6	T562 G6	T881 G2
C1210E2	C509 H6	C844 H2	R104 F4	R303 B4	R457 F6	R650 C6	RR1225 E3	T451 E6	T565 G7	T885 G3
C1213E3	C510 H2	C845 G6	R105 F4	R304 B4	R458 F6	E6 R651 C6	RR1226 D2	T452 C5	T566 G7	T887 H4
C1214E3	C515 H7	C847 G2	R106 F4	R305 B4	R459 E6	R652 C6	RR1227 D3	T454 C5	T569 G7	T889 G2
C1215F2	C516 H6	C848 G2	R107 F4	R306 B4	R460 E6	R653 C6	RR501G7	T462 C5	T601 D7	T890 H2
C1216F2	C517 H7	C849 H4	R112 F4	R311 C2	R461 E6	R654 C6	RR502G7	T463 C5	T602 D7	TP504G6
C1217E2	C520 H6	C898 G3	R113 F4	R312 C2	R462 E6	R655 C6	RR601D6	T464 C5	T603 D6	TP505G6
C1218E2	C520 3H7	C899 G4	R114 F4	R313 C2	R463 F6	R656 D7	RR602D6	T465 C5	T604 D7	TP506G6
C1222F2	C522 H6	CON40 F7	R115 F4	R314 C2	R464 A4	R657 D7	SW401C6	T466 F6	T605 D6	TP506 I5
C1236F3	C524 H7	D101 F5	R1201 D3	R319 A6	R465 B4	R658 E6	T111 D4	T467 E6	T606 D6	TP512 G7
C1237F3	C525 H7	D102 F5	R1202 E2	R323 C2	R469 C5	R659 D7	T120 F2	T470 C5	T607 D6	TP513 G7
C1246F3	C527 H6	D401 B5	R1203E2	R337 H4	R470 B5	R660 D6	T2A408E6	T471 B5	T608 D6	TP514 G7
C1247F3	C534 H7	FBB01H3	R1205D3	R338 C2	R474 C5	R661 D7	T2B40F26	T472 C5	T609 D6	TP515 G7
C1261D3	C541 H7	H101 C3	R1206E3	R361 A5	R476 C5	R662 D6	T2B40E36	T484 G7	T610 D6	TP516 G7
C1272F2	C620 C7	H301 B2	R1207E3	R365 I6	R493 E6	R663 D6	T2B40E46	T507 G6	T611 D6	TP517 G7
C1278F3	C627 C6	H601 A3	R1209E2	R366 I6	R504 G1	R664 C7	T3115 I6	T508 G6	T612 D6	TP518 I5
C1280F3	C628 C6	IC101 E4	R1211 F4	R367 I6	R505 H7	R6901A4	T3116 I6	T509 G6	T613 D7	TP521 I5
C1284F2	C631 C6	IC1201 F2	R1210 E2	R369 I6	R506 H7	R6902A5	T3117 I6	T510 G6	T614 D6	TP522 I5
C1285F2	C632 D6	IC1202 D2	R1211 E3	R370 I6	R507 H6	R6903A4	T328 C2	T5101 H6	T618 C6	TP532 I5
C1293D5	C637 C6	IC1203 E2	R1212 E3	R371 I6	R508 C1	R801 G1	T329 C2	T5102 I6	T619 D7	TP874 G3
C1294F5	C638 C6	IC301 C4	R1213 E2	R372 I6	R509 H6	R802 G1	T334 C2	T5103 I6	T622 C7	TP875 H3
C163 F5	C6903A3	IC302C2	R1214 E3	R404 C5	R5104 I5	R805 H4	T335 C2	T5104 H5	T623 C6	TP876 G3
C164 F5	C6904A5	IC304 I6	R1215 E3	R409 A4	R5106 I5	R806 G1	T336 C2	T5105 I5	T624 D7	TP879 I3
C165 F4	C6905A4	IC409C5	R1216 E3	R4101 C5	R5108 I5	R807 G1	T337 C2	T5107 I5	T625 D7	T ADD1 F4
C302 C2	C801 G3	IC501 F1	R1217 E3	R4102 C5	R5110 I5	R810 G1	T379 G6	T5108 H5	T626 C7	T ADD2 F4
C304 G5	C802 G1	IC502 G6	R1218 E3	R4103 G7	R5111 I5	R811 G1	T382 G4	T5109 H5	T627 D6	T ADD3 F4
C305 G4	C803 G3	IC5101 I5	R1219 E3	R4106 G7	R5112 I5	R820 H2	T387 C2	T5111 G7	T628 C7	T ATA32 A3
C306 G5	C805 H2	IC601 D6	R1222 F5	R4107 G7	R5113 I5	R822 H3	T388 C2	T5110 H5	T630 D6	T ATA34 A3
C307 I4	C806 H3	IC6901 B3	R1220 E3	R416 C5	R5114 I5	R825 H4	T401 F6	T5111 H5	T631 D7	T DAC1 F5
C309 G5	C807 H3	IC6902B2	R1221 E3	R420 C5	R5115 I5	R826 H2	T4124 C4	T5112 H5	T632 D7	T DAC2 F5
C310 G4	C808 G3	IC6903A4	R1222 E3	R426 A4	R5116 I5	R829 H2	T4125 C4	T5113 I5	T634 E6	T DAC3 F5
C311 G5	C809 H4	IC6904 A5	R1223 E3	R436 F6	R5117 I5	R830 I3	T414 F6	T5114 I5	T635 E6	T ± GND I4
C312 G5	C810 G2	IC802 G3	R1224 E3	R437 F6	R514 F1	R831 I3	T424 E6	T5115 I5	T636 E6	T VCR!VIDEO I4
C313 G5	C811 G1	C803H2	R1227 F2	R438 F6	R526 G7	R839 G2	T426 E6	T5116 H5	T637 E6	X101 E5
C314 G5	C812 G3	C804 H3	R1228 F2	R439 F6	R529 H7	R843 G2	T427 E6	T5117 I5	T638 E6	X501 H6
C315 H5	C813 G3	C805 G2	R1229 F2	R440 F6	R531 G7	R844 G2	T431 F6	T521 H7	T639 E6	X601 D6
C316 G5	C815 I3	L103 F5	R141 D4	R441 F6	R533 H7	R890 F4	T432 F6	T522 H7	T640 E6	
C317 G5	C820 H2	L107 E5	R142 D4	R442 F6	R538 G6	R891 H3	T433 F6	T525 G7	T641 E7	
C318 H5	C822 I2	L1202 D3	R143 D4	R443 F6	R539 G6	R893 G3	T435 F6	T526 G7	T642 D6	
C319 H5	C824 H2	L1204 F3	R146 D4	R444 F6	R540 G6	RR103 D5	T437 F6	T528 F1	T850 H2	
C320 H5	C827 I3	L306 G4	R150 F4	R445 F6	R541 G6	RR104 D4	T438 F6	T529 G7	T856 G2	
C327 I6	C828 I3	L307 I4	R151 F4	R446 F6	R542 G6	RR105 D4	T439 F6	T540 H6	T857 G1	

LOCATION GUIDE

/CS4 F5	C1257 E3	C162 E4	C543 C6	I C406 G4	R158 F4	R432 G2	R889 B3	T301 G5	T4103 H4	T504 C7	T869 B2	TJ36916	TP858B4
/CS5 F5	C1258 E3	C301 G4	C621 F6	L102 E4	R160 F4	R433 G2	R892 B4	T302 G5	T4104 H4	T505 C7	T870 B2	TJ37017	TP869B4
/DIAKC F2	C1259 E3	C303 C5	C622 F6	L104 D5	R161 F4	R434 G2	R894 C3	T303 G5	T4105 H4	T506 C7	T871 B2	TJ37116	TP870B4
/UWE E4	C1260 E3	C401 H6	C623 F6	L105 D5	R162 F4	R435 G2	R895 C3	T304 H4	T4106 H4	T507 C7	T872 B2	TJ37216	TP871B4
ATA1FX15	C1260 E3	C402 H6	C624 F6	L106 E2	R163 F4	R436 G2	R897 C3	T305 G5	T4107 D5	T508 C7	T873 B2	TJ37317	TP872C3
ATA3FX15	C1262 E3	C403 H4	C625 F6	L1201 D5	R165 F4	R437 G2	R898 C3	T306 G5	T4108 E3	T509 G5	T874 B2	TJ37418	TP873C4
ATA5VD13	C1263 E3	C408 G3	C626 F6	L1203 F5	R167 D4	R438 G2	R899 C3	T307 G5	T4109 E3	T510 G5	T875 C2	TJ375C5	TP880B3
BST! T#B3	C1267 F3	C410 H4	C629 F6	L302 B5	R168 D4	R439 G2	R900 C3	T308 H4	T4110 D4	T511 G5	T876 C2	TJ376C4	TP881B3
BST! TDN C4	C1269 F3	C413 E6	C630 F6	L303 C5	R2440G	R440 G2	R901 D6	T309 G5	T4111 D6	T512 G5	T877 C2	TJ377C4	TP882B4
BST! TDN C4	C1270 F3	C414 G3	C633 F6	L304 C5	R307 I6	R441 G2	R902 C3	T310 H4	T4112 D4	T513 G5	T878 C2	TJ378B5	TP883B3
BST! TDN D5	C1270 E5	C415 E6	C634 F6	L305 C5	R308 I6	R442 G2	R903 E6	T311 H4	T4113 D2	T514 G5	T879 B2	TJ389C2	TP884B3
BST! TMS E2	C1271 E3	C417 G3	C635 F6	L308 C5	R309 I6	R443 G2	R904 E6	T312 H4	T4114 E3	T515 G5	T880 C2	TJ390C2	TJ390E15
C101 E5	C1275 E3	C501 C7	C636 F6	L309 I6	R310 G2	R444 G2	R905 E6	T313 H4	T4115 D6	T516 G5	T881 C2	TJ391C2	TJ391E5
C102 E4	C1276 E3	C503 D1	C6901 H2	L310 I6	R315 G6	R445 G2	R906 E6	T314 H4	T4116 D6	T517 G5	T882 C2	TJ392H2	TJ392E5
C103 E5	C1277 E3	C505 D1	C6902 H3	L502 B9	R316 G6	R446 G2	R907 C7	T315 H4	T4117 D7	T518 G5	T883 C2	TJ393H2	TJ393E5
C106 D5	C128 E4	C5101 A6	C695012	L503 C6	R317 G6	R447 G2	R908 C7	T316 H4	T4118 D7	T519 G5	T884 C2	TJ394H2	TJ394E5
C107 D5	C1282 D2	C5102 A5	C801 C3	L504 C6	R318 H2	R448 G2	R909 C7	T317 H4	T4119 D6	T520 G5	T885 C2	TJ395H2	TJ395E5
C108 E5	C1283 D3	C5103 A6	C823 B2	L5101 A5	R320 I6	R449 G2	R910 E6	T318 H4	T4120 D6	T521 G5	T886 C2	TJ396H2	TJ396E5
C111 E4	C1286 D2	C5104 A5	C823 B2	L5102 B6	R321 I6	R450 G2	R911 C6	T319 H4	T4121 D6	T522 G5	T887 C2	TJ397H2	TJ397E5
C112 E4	C1287 E2	C5105 A5	C832 B2	L5103 B5	R324 I5	R451 D2	R912 E6	T320 H4	T4122 D6	T523 G5	T888 C2	TJ398H2	TJ398E5
C113 E4	C1288 E2	C5106 B5	C832 B2	L606 F6	R325 I5	R452 D2	R913 E6	T321 H4	T4123 D7	T524 G5	T889 C2	TJ399H2	TJ399E5
C115 E4	C1289 D5	C5107 A5	C838 C2	L607 F6	R326 I5	R453 D2	R914 E6	T322 H4	T4124 D7	T525 G5	T890 C2	TJ400H2	TJ400E5
C116 E4	C1290 D5	C5108 A5	C839 C2	L608 F6	R327 I5	R454 D2	R915 C6	T323 H4	T4125 D7	T526 G5	T891 C2	TJ401H2	TJ401E5
C117 E4	C1290 D5	C5109 B5	C843 C2	L609 G6	R328 I5	R455 D2	R916 C6	T324 H4	T4126 D7	T527 G5	T892 C2	TJ402H2	TJ402E5
C118 E4	C1291 F3	C511 C6	C843 E5	L610 G6	R329 I6	R456 D2	R917 C6	T325 H4	T4127 D7	T528 G5	T893 C2	TJ403H2	TJ403E5
C120 E4	C1292 F4	C5110 A6	C843 E5	L611 G6	R330 I6	R457 D2	R918 C6	T326 H4	T4128 D7	T529 G5	T894 C2	TJ404H2	TJ404E5
C1201 F2	C1295 D3	C5112 B6	F8803C3	L612 G7	R360 I6	R458 D2	R919 C6	T327 H4	T4129 D7	T530 G5	T895 C2	TJ405H2	TJ405E5
C1202 F3	C1296 D3	C5113 C7	F8804A2	L6901 I3	R361 I6	R459 D2	R920 C6	T328 H4	T4130 D7	T531 G5	T896 C2	TJ406H2	TJ406E5
C1203 F2	C130 E4	C5114 C6	F8805A3	L6902 I2	R362 I6	R460 D2	R921 C6	T329 H4	T4131 D7	T532 G5	T897 C2	TJ407H2	TJ407E5
C1204 F3	C131 E5	C5118 C6	F8821C2	L6903 I3	R373 I6	R461 D2	R922 C6	T330 H4	T4132 D7	T533 G5	T898 C2	TJ408H2	TJ408E5
C1205 F3	C132 E4	C5119 B6	F8822C2	L6904 I2	R374 I6	R462 D2	R923 C6	T331 H4	T4133 D7	T534 G5	T899 C2	TJ409H2	TJ409E5
C1206 F2	C133 E4	C5201 C7	F8823B2	L6905 I2	R375 I6	R463 D2	R924 C6	T332 H4	T4134 D7	T535 G5	T900 C2	TJ410H2	TJ410E5
C1207 F3	C134 E4	C5202 A6	F8824B2	L6906 I2	R376 I6	R464 D2	R925 C6	T333 H4	T4135 D7	T536 G5	T901 C2	TJ411H2	TJ411E5
C1208 E2	C135 F2	C521 B6	F8825B2	L6907 I2	R377 I6	R465 D2	R926 C6	T334 H4	T4136 D7	T537 G5	T902 C2	TJ412H2	TJ412E5
C1211 E2	C140 E4	C526 C6	F8826A3	Q807 B3	R408 C3	R410 G2	R927 B2	T335 H4	T4137 D7	T538 G5	T903 C2	TJ413H2	TJ413E5
C1212 E3	C141 E4	C528 B6	F8501B1	Q808 C3	R410 G2	R412 B2	R928 B2	T336 H4	T4138 D7	T539 G5	T904 C2	TJ414H2	TJ414E5
C1213 E3	C142 E4	C529 B6	F8502B1	R116 D2	R4108 G6	R833 C2	T337 H4	T4139 D7	T540 G5	T905 C2	TJ415H2	TJ415E5	
C1214 E3	C143 E4	C530 C6	F8503C1	R1204 D2	R4108 G6	R834 C2	T338 H4	T4140 D7	T541 G5	T906 C2	TJ416H2	TJ416E5	
C1215 E3	C144 E4	C531 C6	F8504C1	R1205 D2	R4109 G6	R835 C2	T339 H4	T4141 D7	T542 G5	T907 C2	TJ417H2	TJ417E5	
C1216 E3	C145 E4	C532 C6	F8505C1	R1206 D2	R4109 G6	R836 C2	T340 H4	T4142 D7	T543 G5	T908 C2	TJ418H2	TJ418E5	
C1217 E3	C146 E4	C533 C6	F8506C1	R1207 D2	R4109 G6	R837 C2	T341 H4	T4143 D7	T544 G5	T909 C2	TJ419H2	TJ419E5	
C1218 E3	C147 E4	C534 C6	F8507C1	R1208 D2	R4110 G6	R838 C2	T342 H4	T4144 D7	T545 G5	T910 C2	TJ420H2	TJ420E5	
C1219 E3	C148 E4	C535 C6	F8508C1	R1209 D2	R4110 G6	R839 C2	T343 H4	T4145 D7	T546 G5	T911 C2	TJ421H2	TJ421E5	
C1220 E3	C149 E4	C536 C6	F8509C1	R1210 D2	R4110 G6	R840 C2	T344 H4	T4146 D7	T547 G5	T912 C2	TJ422H2	TJ422E5	
C1221 E3	C150 E4	C537 C6	F8510C1	R1211 D2	R4110 G6	R841 C2	T345 H4	T4147 D7	T548 G5	T913 C2	TJ423H2	TJ423E5	
C1222 E3	C151 E4	C538 C6	F8511C1	R1212 D2	R4110 G6	R842 C2	T346 H4	T4148 D7	T549 G5	T914 C2	TJ424H2	TJ424E5	
C1223 E3	C152 E4	C539 C6	F8512C1	R1213 D2	R4110 G6	R843 C2	T347 H4	T4149 D7	T550 G5	T915 C2	TJ425H2	TJ425E5	
C1224 E3	C153 E5	C540 C6	F8513C1	R1214 D2	R4110 G6	R844 C2	T348 H4	T4150 D7	T551 G5	T916 C2	TJ426H2	TJ426E5	
C1225 E3	C154 D5	C541 C6	F8514C1	R1215 D2	R4110 G6	R845 C2	T349 H4	T4151 D7	T552 G5	T917 C2	TJ427H2	TJ427E5	
C1226 E3	C155 E5	C542 C6	F8515C1	R1216 D2	R4110 G6	R846 C2	T350 H4	T4152 D7	T553 G5	T918 C2	TJ428H2	TJ428E5	
C1227 E3	C156 E5	C543 C6	F8516C1	R1217 D2	R4110 G6	R847 C2	T351 H4	T4153 D7	T554 G5	T919 C2	TJ429H2	TJ429E5	
C1228 E3	C157 E5	C544 C6	F8517C1	R1218 D2	R4110 G6	R848 C2	T352 H4	T4154 D7	T555 G5	T920 C2	TJ430H2	TJ430E5	
C1229 E3	C158 E4	C545 C7	F8518C1	R1219 D2	R4110 G6	R849 C2	T353 H4	T4155 D7	T556 G5	T921 C2	TJ431H2	TJ431E5	
C1230 E3	C159 E5	C546 C6	F8519C1	R1220 D2	R4110 G6	R850 C2	T354 H4	T4156 D7	T557 G5	T922 C2	TJ432H2	TJ432E5	
C1231 E3	C160 E4	C547 C6	F8520C1	R1221 D2	R4110 G6	R851 C2	T355 H4	T4157 D7	T558 G5	T923 C2	TJ433H2	TJ433E5	
C1232 E3	C161 E4	C548 C6	F8521C1	R1222 D2	R4110 G6	R852 C2	T356 H4	T4158 D7	T559 G5	T924 C2	TJ434H2	TJ434E5	
C1233 E3	C162 E4	C549 C6	F8522C1	R1223 D2	R4110 G6	R853 C2	T357 H4	T4159 D7	T560 G5	T925 C2	TJ435H2	TJ435E5	
C1234 E3	C163 E4	C550 C6	F8523C1	R1224 D2	R4110 G6	R854 C2	T358 H4	T4160 D7	T561 G5	T926 C2	TJ436H2	TJ436E5	
C1235 E3	C164 E4	C551 C6	F8524C1	R1225 D2	R4110 G6	R855 C2	T359 H4	T4161 D7	T562 G5	T927 C2	TJ437H2	TJ437E5	
C1236 E3	C165 E4	C552 C6	F8525C1	R1226 D2	R4110 G6	R856 C2	T360 H4	T4162 D7	T563 G5	T928 C2	TJ438H2	TJ438E5	
C1237 E3	C166 E4	C553 C6	F8526C1	R1227 D2	R4110 G6	R857 C2	T361 H4	T4163 D7	T564 G5	T929 C2	TJ439H2	TJ439E5	
C1238 E3	C167 E4	C554 C6	F8527C1	R1228 D2	R4110 G6	R858 C2	T362 H4	T4164 D7	T565 G5	T930 C2	TJ440H2	TJ440E5	
C1239 E3	C168 E4	C555 C6	F8528C1	R1229 D2	R4110 G6	R859 C2	T363 H4	T4165 D7	T566 G5	T931 C2	TJ441H2	TJ441E5	
C1240 E3	C169 E4	C556 C6	F8529C1	R1230 D2	R4110 G6	R860 C2	T364 H4	T4166 D7	T567 G5	T932 C2	TJ442H2	TJ442E5	
C1241 E3	C170 E4	C557 C6	F8530C1	R1231 D2	R4110 G6	R861 C2	T365 H4	T4167 D7	T568 G5	T933 C2	TJ443H2	TJ443E5	
C1242 E3	C171 E4	C558 C6	F8531C1	R1232 D2	R4110 G6	R862 C2	T366 H4	T4168 D7	T569 G5	T934 C2	TJ444H2	TJ444E5	
C1243 E3	C172 E4	C559 C6	F8532C1	R1233 D2	R4110 G6	R863 C2	T367 H4	T4169 D7	T570 G5	T935 C2	TJ445H2	TJ445E5	
C1244 E3	C173 E4	C560 C6	F8533C1	R1234 D2	R4110 G6	R864 C2	T368 H4	T4170 D7	T571 G5	T936 C2	TJ446H2	TJ446E5	
C1245 E3	C174 E4	C561 C6	F8534C1	R1235 D2	R4110 G6	R865 C2	T369 H4	T4171 D7	T572 G5	T937 C2	TJ447H2	TJ447E5	
C1246 E3	C175 E4	C562 C6	F8535C1	R1236 D2	R4110 G6	R866 C2	T370 H4	T4172 D7	T573 G5	T938 C2	TJ448H2	TJ448E5	
C1247 E3	C176 E4	C563 C6	F8536C1	R1237 D2	R4110 G6	R867 C2	T371 H4	T4173 D7	T574 G5	T939 C2	TJ449H2	TJ449E5	
C1248 E3	C177 E4	C564 C6	F8537C1	R1238 D2	R4110 G6	R868 C2	T372 H4	T4174 D7	T575 G5	T940 C2	TJ450H2	TJ450E5	
C1249 E3	C178 E4	C565 C6	F8538C1	R1239 D2	R4110 G6	R869 C2	T373 H4	T4175 D7	T576 G5	T941 C2	TJ451H2	TJ451E5	
C1250 E3	C179 E4	C566 C6	F8539C1	R1240 D2	R4110 G6	R870 C2	T374 H4	T4176 D7	T577 G5	T942 C2	TJ452H2	TJ452E5	
C1251 E3	C180 E4	C567 C6	F8540C1	R1241 D2	R4110 G6	R871 C2	T375 H4	T4177 D7	T578 G5	T9			

2. VDR P.C.BOARD (BOTTOM VIEW)



SECTION 4 MECHANISM OF VCR PART(D-37)

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TROUBLESHOOTING GUIDE

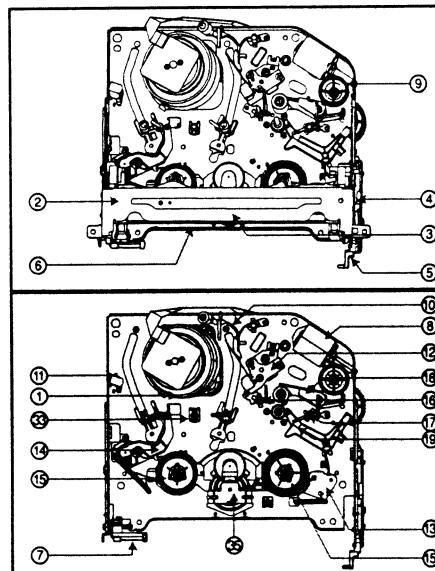
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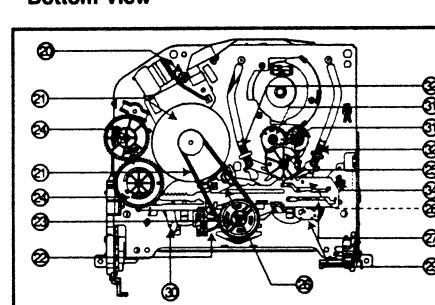
POSITION DRAWING OF DECK MECHANISM PARTS

• Top View



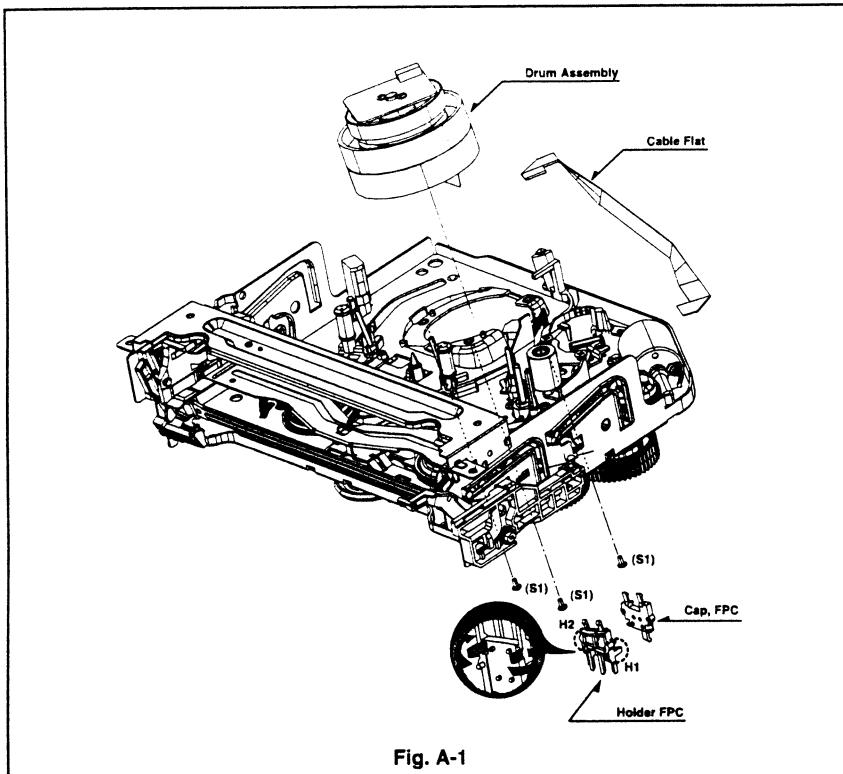
Order Of Dis-assembled Parts firstly Disassembled	Part	Rising Type	Ref. Drawings	Posi- tion
1	Drum Assembly	3 screws	A-1	T
2	Plate Top	2 hooks	A-2	T
2,3	Holder Assembly CST	6 chassis	A-2	T
2,3,4	Gear Assembly Rack F/L	1 hook	A-2	T
2,3,4,5	Opener Door	Chassis Hole	A-2	T
2,3,4,5,6	Arm Assembly F/L	Chassis Hole	A-2	T
7	Lever Assembly S/W	Chassis Hole: 1 hook	A-2	T
8	Motor Assembly L/D	1 screw	A-3	T
9	Gear Wheel	2 hooks	A-3	T
10	Arm Assembly Cleaner	Chassis Embossing	A-3	T
11	Head F/E	Chassis Embossing	A-3	T
12	Base Assembly A/C Head	1 screw	A-3	T
13	Brake Assembly T	1 hook	A-4	T
2,3	Arm Assembly Tension	1 hook	A-4	T
2,3,13,14	Reel S / Reel T	Shaft	A-4	T
16	Base Assembly P4	Chassis Embossing	A-5	T
17	Opener Lid	Chassis Embossing	A-5	T
18	Arm Assembly Pinch	Shaft	A-5	T
17	Arm T/Up	1 hook	A-5	T
20	Supporter, capstan	Chassis Hole	A-6	B
17,18	Belt Capstan/Motor Capstan	3 screws	A-6	B
22	Lever F/R	Locking Tab	A-6	B
21, 22	Clutch Assembly D37	Washer	A-6	B
24	Gear Drive/Gear Cam	Washer/Hook	A-7	B
25	Gear Sector	Hook	A-7	B
21	Brake Assembly Capstan	Chassis Hole	A-7	B
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21,22,23	Lever Tension	1 Hook	A-7	B
24,25,26,27	Lever Spring	1 Hook	A-7	B
21,22,23	Lever Brake	1 Hook	A-7	B
24,25,26,27				
25	Gear Assembly P2/ Gear Assembly P3	Bass	A-8	B
2,3,14,	Base Assembly P2	6 Chasses	A-8	B
25,31	Base Assembly P3			
25,31	Base Loading	3 Hooks	A-8	B
2,3,14	Base Tension	Chassis Embossing	A-9	T
35	Arm Assembly Idler Jog	Locking Tab	A-9	B

T:Top, B:Bottom



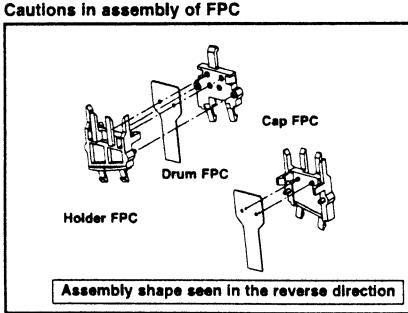
- (1) For assembly, check the assembly mode is accurate.
(2) Parts firstly disassembled indicate parts firstly disassembled in disassembly of related parts.

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM



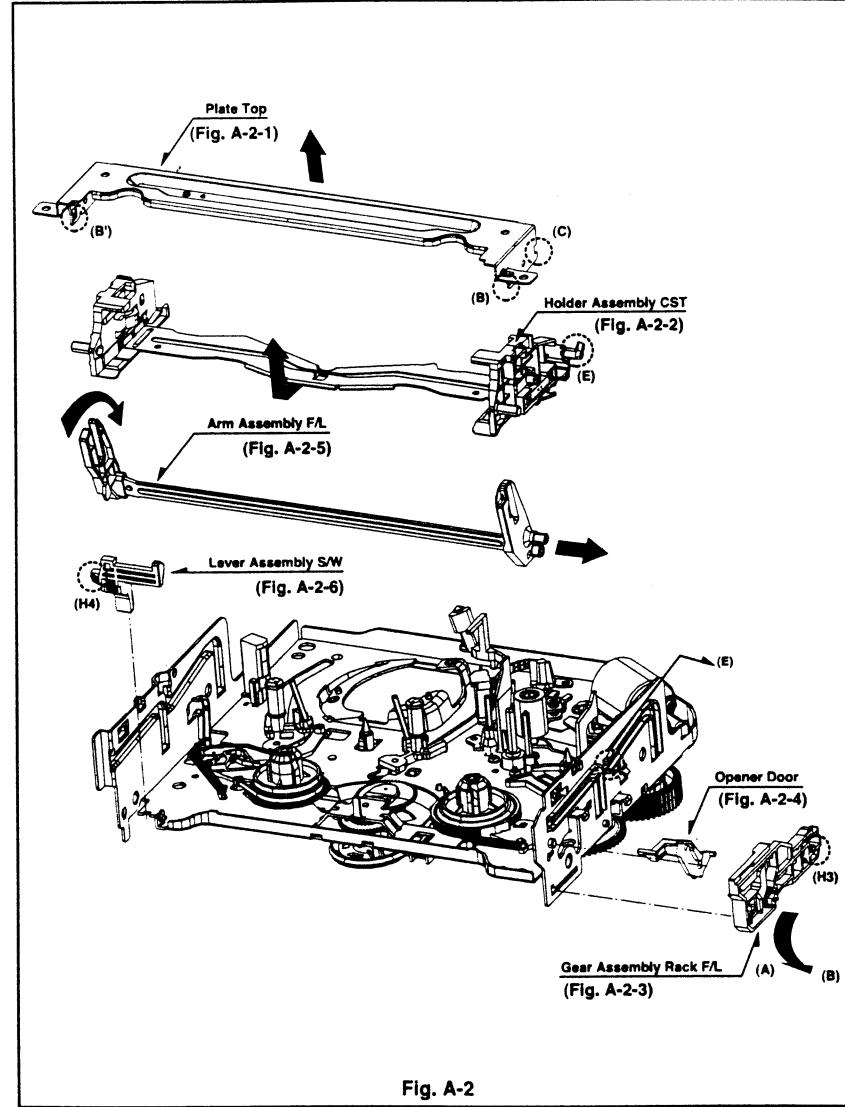
1. Disassembly of Drum Assembly (Figure A-1)

- 1) Separate cable flat from the Drum FPC and the Capstan Motor.
- 2) Release 3 screws (S1) on the bottom side of the chassis, and separate the drum assembly.
- 3) Release the hooks (H1, H2) and separate both the holder FPC and the Cap FPC (disassemble if necessary).



4-2

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM



4-3

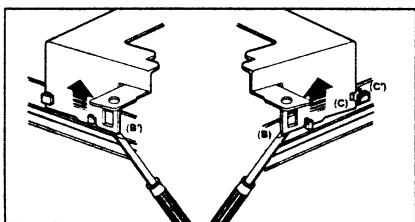
DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

2. Disassembly of Plate Top (Fig. A-2-1)

- 1) Separate the right part while leaning back the (B) part of the plate top toward the arrow direction.
- 2) Separate the left part while leaning back the (B') part of the plate top toward the arrow direction.
(Tool used: Tool such as (-) driver, auger, etc with pointed or flat end)

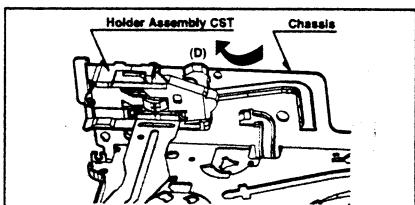
CAUTIONS

Assemble while pressing the (C), (C') part after corresponding them as in drawing.



3. Holder Assembly CST (Fig. A-2-2)

- 1) Firstly separate the left part from the groove on the (D) part of chassis while moving the holder assembly CST toward the arrow direction.



- 2) Separate the right part from each groove of chassis

CAUTIONS

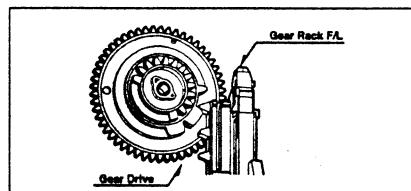
Assemble by inserting the left part after firstly inserting the (E) part of the holder assembly CST into the groove on the (E') part of chassis.

4. Disassembly of Gear Assembly Rack F/L (Fig. A-2-3)

- 1) Separate the hook (H3) while leaning ahead the hook (3) after moving the gear assembly rack F/L toward the arrow (A) direction.
- 2) Separate the gear assembly rack F/L toward the arrow (B) direction.

CAUTIONS

For the assembly, correspond the gear part of gear assembly rack F/L to the gear drive.



5. Opener Door (Fig. A-2-4)

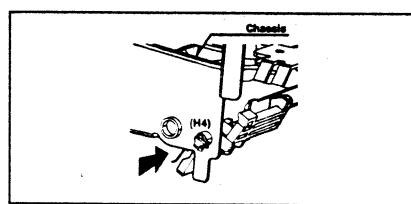
- 1) Separate the opener door ahead from the guide hole of chassis while turning it clockwise.

6. Arm Assembly F/L (Fig. A-2-5)

- 1) Firstly separate the left part of the arm assembly F/L from the groove of chassis while pushing the arm assembly F/L toward the arrow direction.
- 2) Separate the right part from the groove of chassis.).

7. Lever Assembly S/W (Fig. A-2-6)

- 1) Separate the lever assembly S/W while pushing it toward the arrow direction after removing the hook (4) on the left side of chassis.



DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

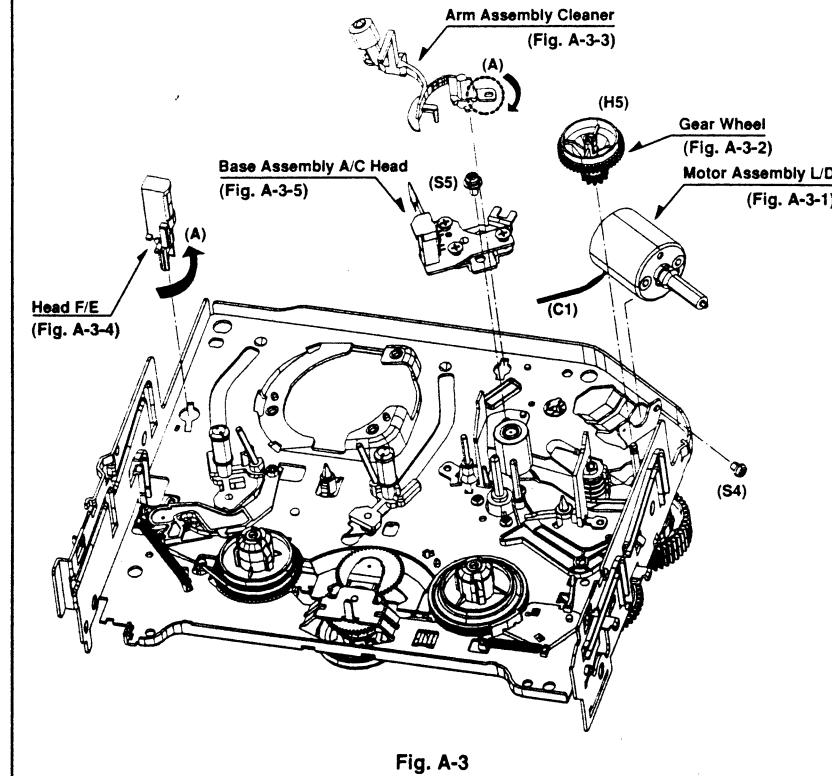


Fig. A-3

8. Motor Assembly L/D (Fig. A-3-1)

- 1) Take the connector (C1) connected to the Capstan motor PCB out.
- 2) Remove a screw (S4) of the chassis (S4) and step backward, and disassemble it while holding it up.

9. Gear Wheel (Fig. A-3-2)

- 1) Release the hook (H5) of the gear wheel and disassemble it upward.

10. Arm Assembly Cleaner (Fig. A-3-3)

- 1) Separate the (A) part of Fig. A-3-1 from the embossing of chassis, and hold it up while turning it anti-clockwise.

11. Head F/E (Fig. A-3-4)

- 1) Separate the (A) part of the head F/E from the embossing of chassis, and hold it up while turning it anti-clockwise.

12. Base Assembly A/C Head (Fig. A-3-5)

- 1) Release a screw (S5) and disassemble while holding it up.

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

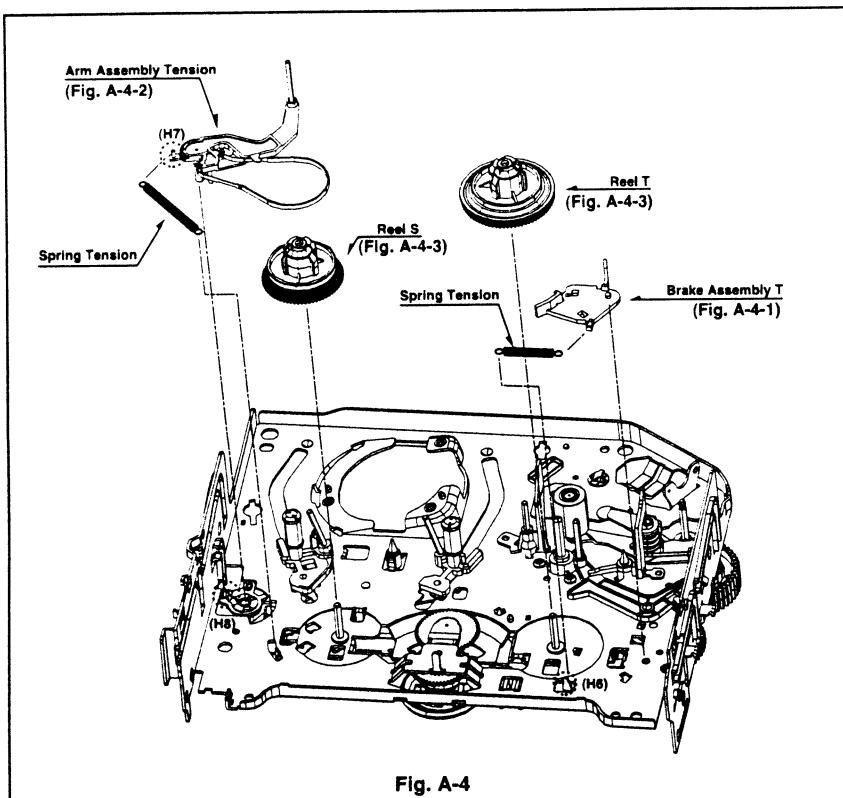


Fig. A-4

13. Brake Assembly T (Fig. A-4-1)

- 1) Release the spring tension from the lever spring hook (H6).
- 2) Disassemble the brake assembly T while holding it upward.

14. Arm Assembly Tension (Fig. A-4-2)

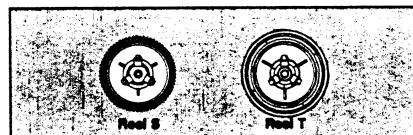
- 1) Release the spring tension the hook (H7) from the arm assembly tension.
- 2) After releasing the hook (H8) of the base tension, separate it while holding it up.

CAUTIONS

Spring used for both brake assembly T and arm assembly tension is used (2EA used).

15. Reel S/Reel T (Fig. A-4-3)

- 1) Disassemble the reel S/ reel T while holding it up (comparison between Reel S and Reel T).



DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

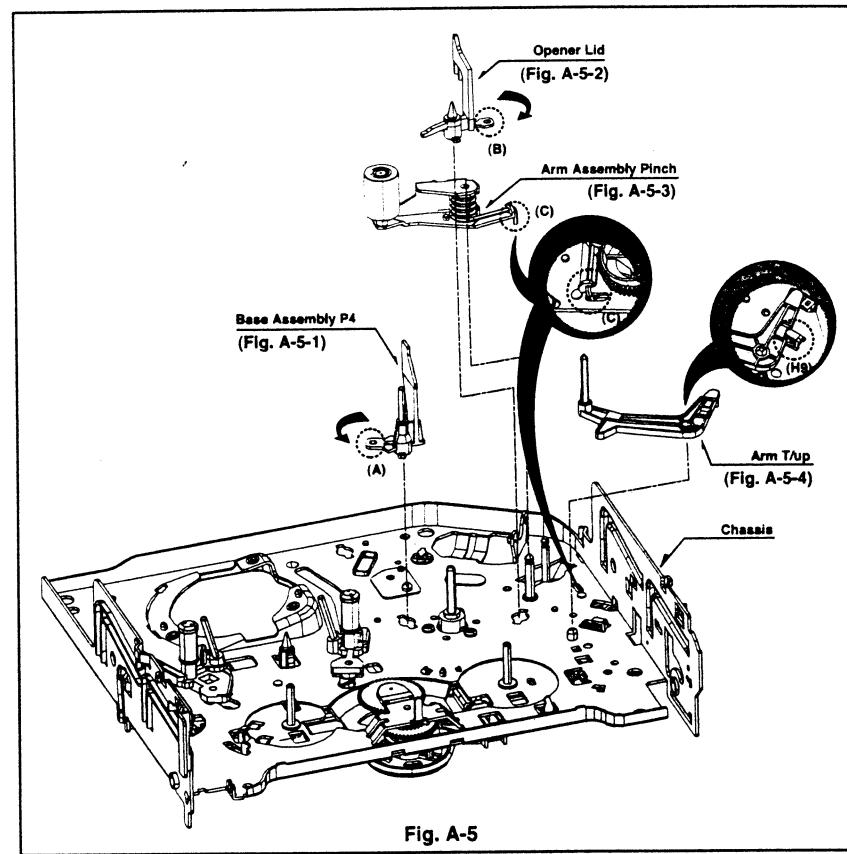


Fig. A-5

16. Base Assembly P4 (Fig. A-5-1)

- 1) Release the (A) part of the base assembly P4 from the embossing of chassis.
- 2) Hold the base assembly P4 up while turning it anti-clockwise.

17. Opener Lid (Fig. A-5-2)

- 1) Release the (B) part of the opener lid from the embossing of chassis.
- 2) Disassemble the opener lid upward while turning it anti-clockwise.

18. Arm Assembly Pinch (Fig. A-5-3)

- 1) Hold the arm assembly pinch up.

19. Arm T/up (Fig. A-5-4)

- 1) Turn the arm T/up to release the anchor jaw (H9) part of chassis and then hold it upward.

CAUTIONS

For the assembly, check the (C) part of the arm assembly pinch is assembled as in drawing.

- REVERSE THE MECHANISM.

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

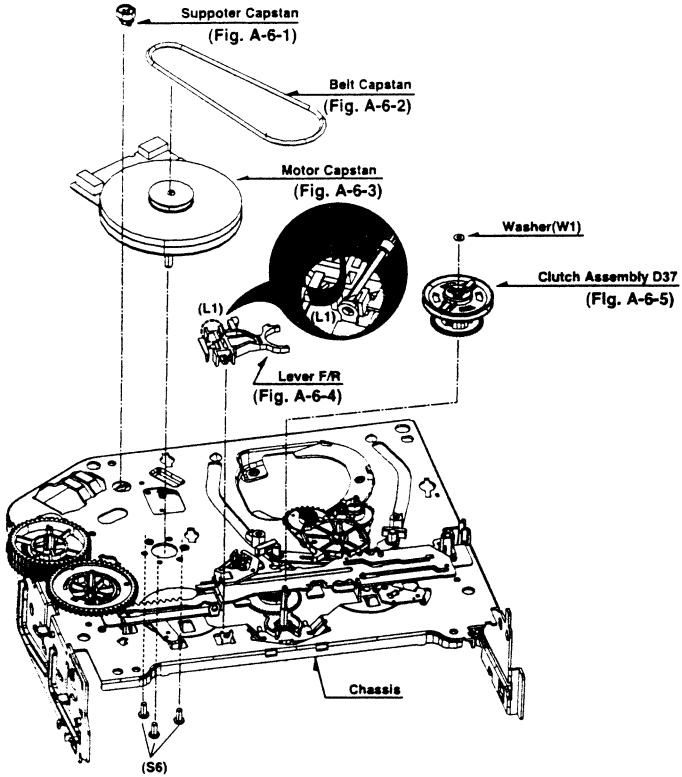


Fig. A-6

20. Supporter, Capstan (Fig. A-6-1)

- 1) Turn the supporter and Capstan by 90 deg. clockwise with a driver for disassembly.

21. Belt Capstan (Fig. A-6-2) / Motor Capstan (Fig. A-6-3)

- 1) Separate the belt Capstan.
- 2) Undo 3 screws (S6) on the bottom side of chassis and disassemble it upward.

22. Lever F/R (Fig. A-6-4)

- 1) Release the locking tab (L1) and then disassemble it upward.

23. Clutch Assembly D37 (Fig. A-6-5)

- 1) Remove the washer (W1) and then disassemble it upward.

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

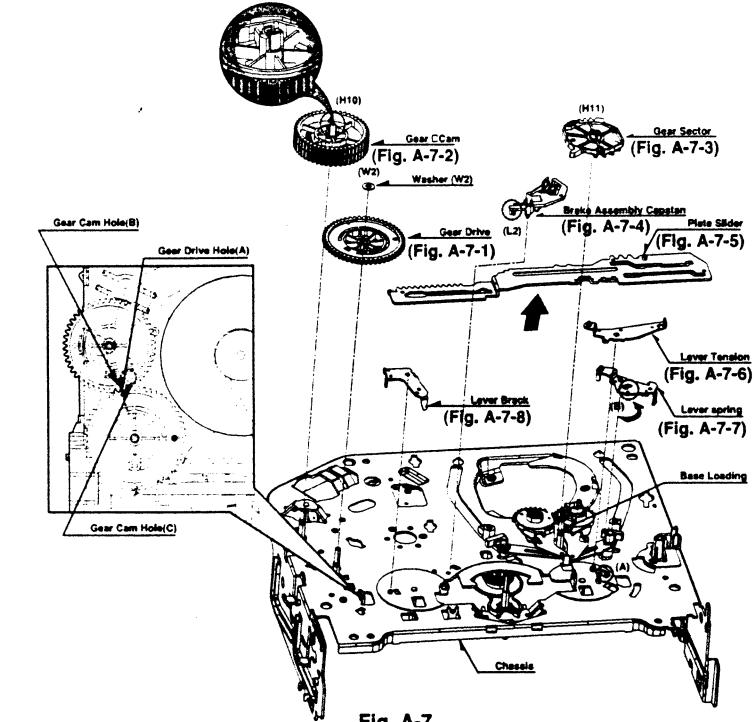


Fig. A-7

24. Gear Drive (Fig. A-7-1)/ Gear Cam (Fig. A-7-2)

- 1) Remove the washer (W2) and then disassemble the gear drive.
- 2) Release the hook (H10) of the gear cam and then disassemble it upward.

CAUTIONS

For the assembly, adjust both the gear driver hole (A) and the gear cam hole (B) straightly and then correspond the gear cam hole (C) to the chassis hole.

25. Gear Sector (Fig. A-7-3)

- 1) Release the hook (H11) of the gear sector and then hold the gear sector upward.

26. Brake Assembly Capstan (Fig. A-7-4)

- 1) Release the locking tab (L2) on the bottom side of the plate slider and then disassemble it upward.

27. Plate Slider (Fig. A-7-5)

- 1) Disassemble the plate slider while holding it up.

28. Lever Tension (Fig. A-7-6)

- 1) Release the lever tension from the guide (A) of chassis while turning it anti-clockwise.
- 2) Disassemble the lever tension while holding it up.

29. Lever Spring (Fig. A-7-7)

- 1) Release the (B) part of the lever spring from the guide (A) of chassis while turning it anti-clockwise.
- 2) Disassemble the lever tension while holding it up.

30. Lever Brake (Fig. A-7-8)

- 1) Disassemble the lever brake while holding it up.

DECK MECHANISM DISASSEMBLY

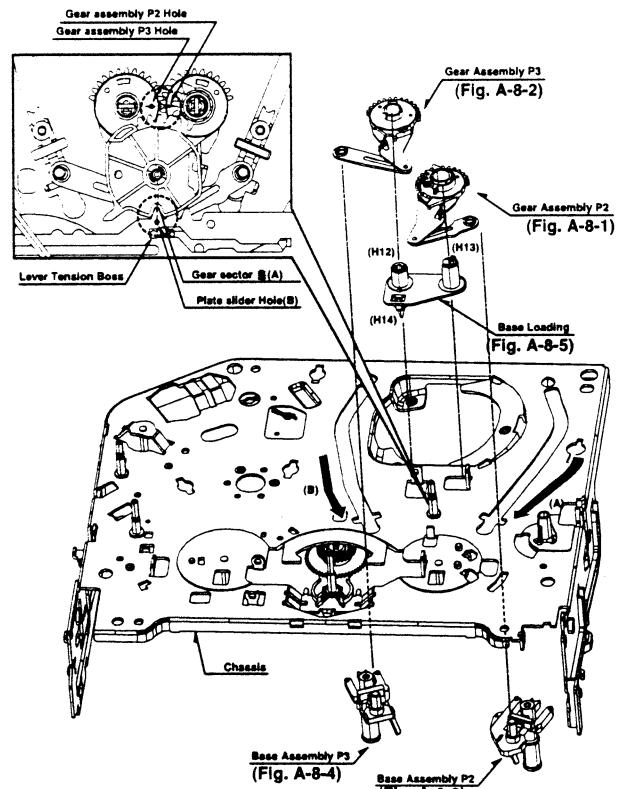


Fig. A-8

31. Gear Assembly P2 (Fig. A-8-1)/ Gear Assembly P3 (Fig. A-8-2)

- 1) Hold the gear assembly P2 upward.
- 2) Hold the gear assembly P3 upward.

CAUTIONS

For the assembly, check the holes of both the gear assembly P2 and the P3 are adjusted straightly, and then correspond the gear section groove (A) to the plate slider hole (B).

32. Base Assembly P2 (Fig. A-8-3)/ Base Assembly P3 (Fig. A-8-4)

- 1) Disassemble the base assembly P2 downward while moving it toward the arrow (A) direction along with the guide hole of chassis.
- 2) Disassemble the base assembly P2 downward while moving it toward the arrow (B) direction along with the guide hole of chassis.

33. Base Loading (Fig. A-8-5)

- 1) Release 3 hooks (H12, 13, 14) of the base loading, and then disassemble them upward.
- Reverse the mechanism.

DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM

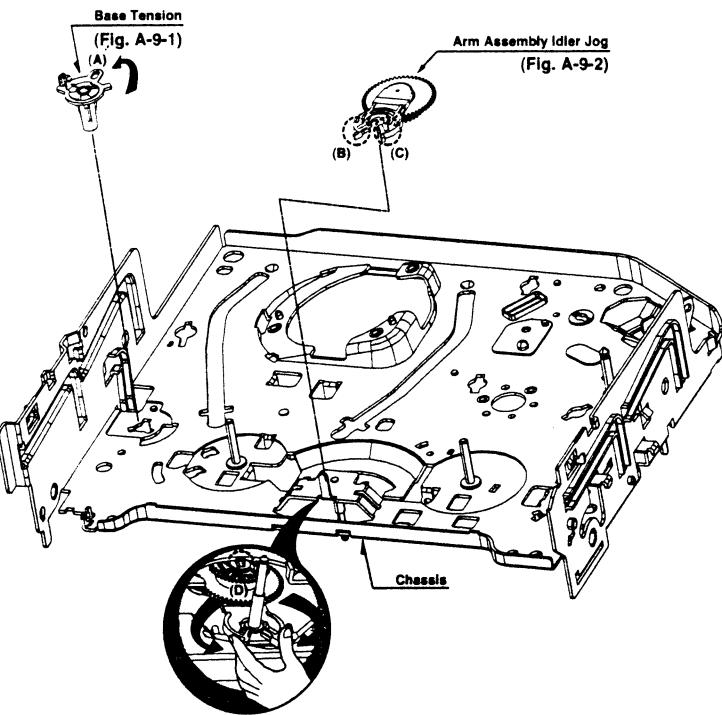


Fig. A-9

34. Base Tension (Fig. A-9-1)

- 1) Release the (A) part of the base tension from the embossing of chassis.
- 2) Hold the base tension upward while turning it anti-clockwise.

35. Arm assembly Idler Jog (Fig. A-9-2)

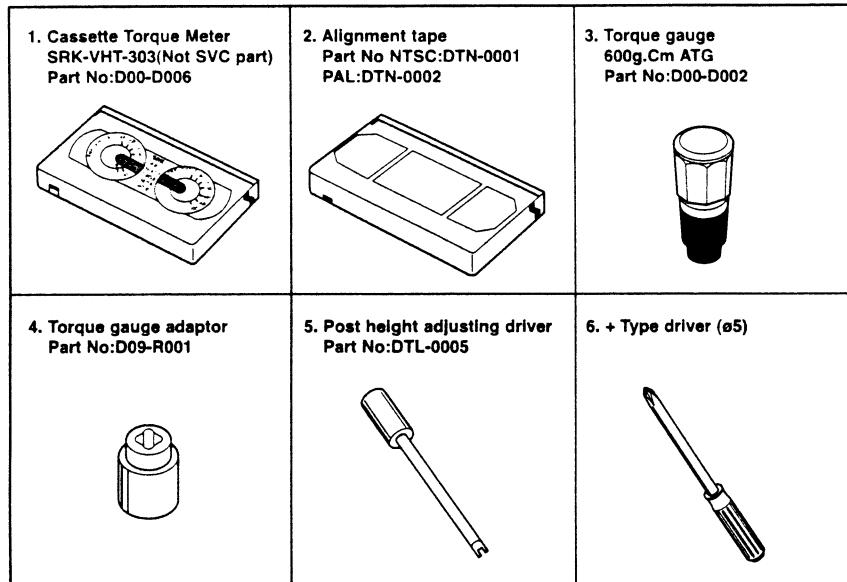
- 1) Push both (B), (C) parts in Fig. A-9-2 toward the arrow direction.
- 2) Disassemble the arm assembly idler upward.

CAUTIONS

Take care to ensure that the (D) part in the drawing is not hung to chassis in disassembly.

DECK MECHANISM ADJUSTMENT

• Fixtures and Tools for Service



4-12

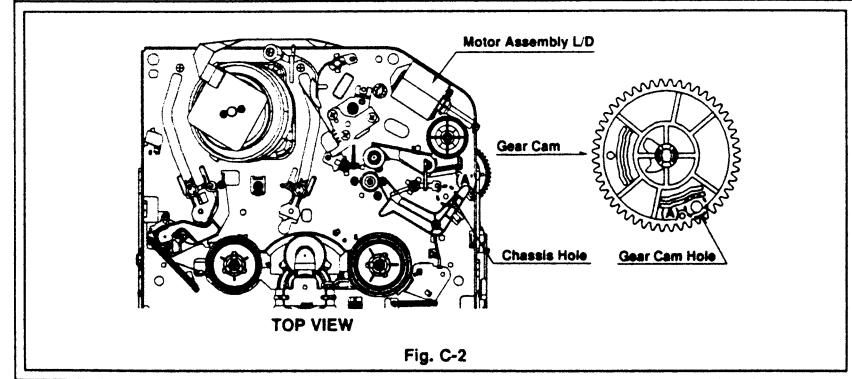
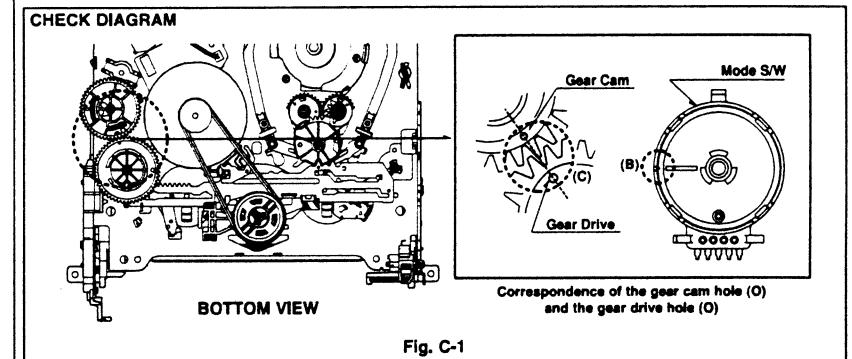
DECK MECHANISM ADJUSTMENT

1. Mechanism Assembly Mode Check

Purpose of adjustment : To make tools normally operate by positioning tools accurately.

Fixtures and tools used	VCR (VCP) status	Checking Position
• Blank Tape (empty tape)	• Eject Mode (with cassette withdrawn)	• Mechanism and Mode Switch

- 1) Turn the VCR on and take the tape out by pressing the eject button.
- 2) Separate both top cover and plate top, and check both the hole (A) of gear cam and the hole (A') of chassis correspond (Fig. C-2).
- 3) If it is done as in the paragraph 2): Turn the gear cam as in No.2) after mounting the motor assembly LD.
- 4) Undo the screw fixing the deck and the main frame, and separate the deck assembly. Check both the hole (A) of gear cam and the hole (A') of chassis correspond (Fig. C-1).
- 5) Check the mode S/W on the main P.C. board locates at a proper position as in (B) of the Fig. (C-1).
- 6) Connect the deck to the main P.C. board and perform all types of test.



4-13

DECK MECHANISM ADJUSTMENT

2. Previous Preparation for Deck Adjustment

(Preparation to load the VCR (VCP) with cassette tape not inserted)

- 1) Take the power cord from the consent.
- 2) Separate the top cover and the plate assembly top.
- 3) Insert the power cord into again.
- 4) Turn the VCR (VCP) on and load the cassette while pushing the lever stopper of the holder assembly CST backward. In this case, clog both holes on the housing rail part of chassis to prevent detection of the end sensor.

If doing so, proceeding to the stop mode is done. In this status, input signals of all modes can be received. However, operation of the Rewind and the Review is impossible since the take-up reel remains at stop status and so cannot detect the reel pulse (however, possible for several seconds).

3. Torque Measuring

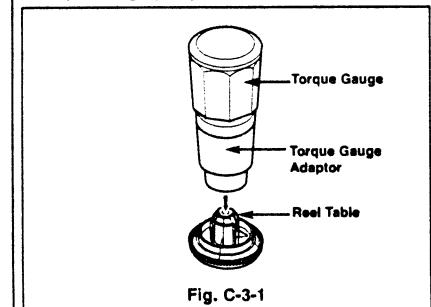
Purpose of Measuring : To measure and check the reel torque on the take-up part and the supply part that performs basic operation of the VCR (VCP) for smoothly forwarding the tape.
Measure and check followings when the tape is not smoothly wound or the tape velocity is abnormally proceeded:

Fixtures and tools used	VCR (VCP) status	Measuring method		
• Torque Gauge (600 g.cm ATG) • Torque Gauge Adaptor • Cassette Torque Meter SRK-VHT-303	• Play (FF) or Review (REW) Mode	<ul style="list-style-type: none"> • Try to operate the VCR (VCP) per mode with the tape not inserted (See 2. Prior Preparation for Deck Adjustment). • Measure after adhering and fixing the torque gauge adaptor to the torque gauge (Fig. C-3-1) • Read scale of the supply or take-up part of the cassette torque meter (Fig. C-3-2). 		
Item Mode Instruments Reel Measured Measuring Value				
Fast forward Torque	Fast Forward	Torque Gauge	Take-Up Reel	More than 400g°cm
Rewind Torque	Rewind	Torque Gauge	Supply Reel	More than 400g°cm
Play Take-Up Torque	Play	VHT-303	Take-Up Reel	40~100g°cm
Review Torque	Review	VHT-303	Supply Reel	120~210g°cm

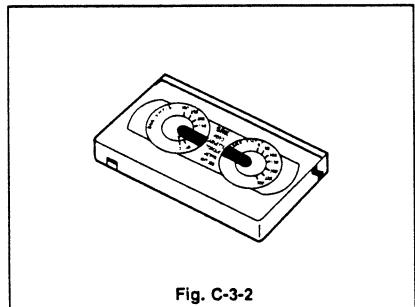
NOTE

Adhere the torque gauge adaptor to the torque gauge for measuring the value.

• Torque Gauge (600g.cm ATG)



• Cassette Torque Meter (SRK-VHT-303)



DECK MECHANISM ADJUSTMENT

4. Guide Roller Height Adjustment

Purpose of adjustment : To ensure that the bottom surface of the tape can travel along with the tape lead line of the lower drum by constantly and adjusting and maintaining the height of the tape.

4-1. Prior Adjustment

Fixtures and tools used	VCR (VCP) status	Adjustment position
• Post Height Adjusting Driver	• Play or Review Mode	• The guide roller height adjusting screw on the supply guide roller and the take-up guide roller

Adjustment Procedure

- 1) Travel the tape and check the bottom surface of the tape travels along with the guide line of the lower drum.
- 2) If the tape travels toward the lower part of guide line on the lower drum, turn the guide roller height adjusting screw to the left
- 3) If it travels to the upper part, turn it to the right.
- 4) Adjust the height of the guide roller to ensure that the tape is guided on the guide line of the lower drum at the inlet/outlet of the drum. (Fig. C-4-1)

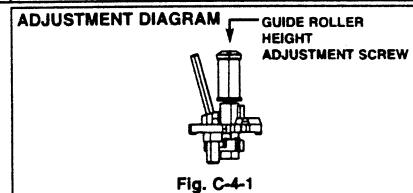


Fig. C-4-1

4-2. Fine Adjustment

Fixtures and tools used	Measuring tools and connection position	VCR (VCP) status	Adjustment position
• Oscilloscope • Standard test tape • Post height adjusting driver	<ul style="list-style-type: none"> • CH-1: PB RF Envelope • CH-2: NTSC : SW 30Hz PAL : SW 25Hz • Head switching output point • RF Envelope output point 	• Play the standard test tape.	• Guide roller height adjusting screw

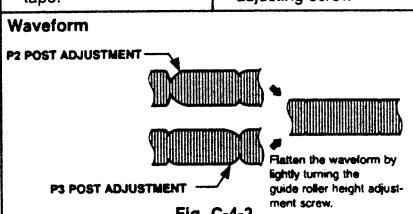


Fig. C-4-2

- 1) Play the standard test tape after connecting the probe of oscilloscope to the RF envelope output point and the head switching output point.
- 2) Tracking control (playback) : Locate it at the center (Set the RF output to the maximum value via the tracking control when such adjustment is completed after the drum assembly is replaced.)
- 3) Height adjusting screw: Flatten the RF waveform. (Fig. C-4-2)
- 4) Move the tracking control (playback) to the right/left. (Fig. C-4-3)
- 5) Check the start and the end of the RF output reduction width are constant.

CAUTIONS

There must exist no crumpling and folding of the tape due to excess adjustment or insufficient adjustment.

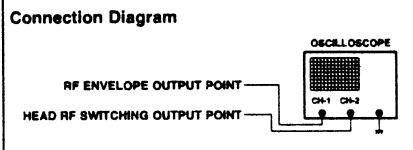


Fig. C-4-2

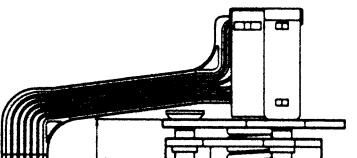
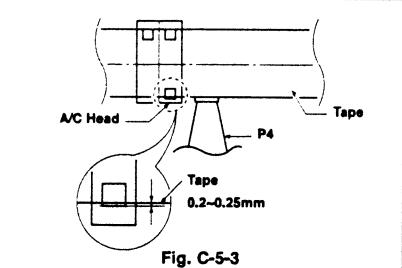
Connection Diagram

DECK MECHANISM ADJUSTMENT

5. Audio/Control (A/C) Head Adjustment

Purpose of adjustment : To ensure that audio and control signals can be recorded and played according to the contract tract by constantly maintaining distance between tape and head, and tape tension between the P3 post and the P4 post.

5-1. Prior Adjustment (performed only when no audio output appears in play of the standard test tape)

Fixtures and tools used	VCR (VCP) status	Adjustment position
• Blank Tape (Empty Tape) • Driver (+) Type Ø 5	• Play the blank tape (empty tape).	• Tilt adjusting screw (C) • Height adjusting screw (B) • Azimuth adjusting screw (A)
Adjustment Procedure/Adjustment Diagrams		
1) Basically use the A/C head assembly adjusted as in SPEC. 2) Check there is crumpling and folding of the tape around the A/C head. If it is, Turn and adjust the tilt adjusting screw to ensure that the tape corresponds to the bottom guide of the P4, and recheck the tape path after proceeding play for 4~5 seconds.		
 Fig. C-5-1		
 Fig. C-5-2		

DECK MECHANISM ADJUSTMENT

5-2. Tape Path Check between Pinch Roller and Take up Guide (Check in the Rev Mode)

- 1) Check the tape pass status between the pinch roller and the take-up guide.(Check there is crumpling of the tape pass and folding of the take-up guide.)
 - (1) When holding of the take-up guide bottom occurs
Turn the tilt adjusting screw (C) clockwise and travel it stably to ensure there is no crumpling or folding of the tape.
 - (2) When holding of the take-up guide top occurs
Turn the tilt adjusting screw (C) anti-clockwise and

travel it stably to ensure there is no crumpling or folding of the tape.

- 2) Check there is folding of the tape at the bottom or top of the take-up guide in cutting-off the REV mode

CAUTIONS

If the RF waveform is changed after adjusting the A/C head, perform fine adjustment to ensure the RF waveform is flattened.

5-3. Fine Adjustment (Azimuth Adjustment)

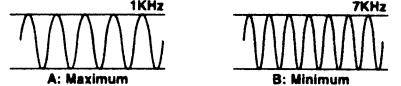
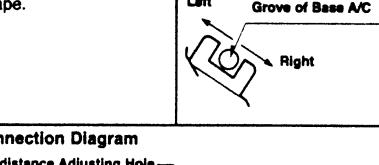
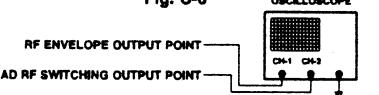
Fixtures and tools used	Connection position	VCR (VCP) status	Adjustment position
• Oscilloscope • Standard test tape (only for SP) • Driver (+) Type Ø 4	• Audio Output Jack	• Play the standard test • Tape, 1KHz, 7KHz.	• Azimuth Adjusting Screw (A) • Height Adjusting Screw (B)
Adjustment Procedure			
<ol style="list-style-type: none"> 1) Connect the probe of Oscilloscope to the audio output jack. 2) Ensure that Audio 1KHz, 7KHz output is flattened at the maximization point by adjusting the Azimuth adjusting screw (A).  			

Fig. C-5-4

6. X-distance Adjustment

Purpose of adjustment : To maintain compatibility with other VCR (VCP).			
Fixtures and tools used	Connection position	VCR (VCP) status	Adjustment position
• Oscilloscope • Standard test tape (only for SP) • Driver (+) Type Ø 4	• CH-1: PB RF Envelope • CH-2: NTSC ; SW 30Hz PAL:SW 25Hz • Head switching output point • RF Envelope output point	• Play the standard test tape.	 Fig. C-6
Adjustment Procedure			Connection Diagram
<ol style="list-style-type: none"> 1) After releasing the auto tracking, lightly turn the fixing screw. Turn the (+) type driver (Ø 3 ~ Ø 4) on the X-distance adjusting hole to the right or left. Adjust the RF envelope level to the maximum point and then fix the fixing screws. 2) For the 31mm head, adjust it with the SP tape recorded in the width of 31mm since the head travels on the tape track only for SP with the width of 58mm. 			

DECK MECHANISM ADJUSTMENT

7. Adjustment after Drum Assembly (Video Heads)

Purpose of adjustment : To adjust and stabilize the height change, X-distance change, etc depending on the guide roller after assembling the drum.			
Fixtures and tools used	Connection position	VCR (VCP) status	Adjustment position
<ul style="list-style-type: none"> Oscilloscope Standard test tape (only for SP) Post Height Adjusting Driver Driver (+) Type Ø 5 	<ul style="list-style-type: none"> CH-1: PB RF Envelope CH-2: NTSC : SW 30Hz PAL:SW 25Hz Head switching output point RF Envelope output point 	<ul style="list-style-type: none"> Play the blank tape. Play the standard test tape. 	<ul style="list-style-type: none"> Fine adjustment of guide roller Switching Point Tracking Preset X-distance
Checking/Adjustment Procedure			
<ol style="list-style-type: none"> Play the blank tape (empty tape) and check whether the guide roller crumbles or wrinkles the tape and adjust it if necessary. Check that the RF envelope output waveform is flat, and adjust the height of the guide roller while playing the standard test tape. Adjust the switching point. Check the RF envelope output is the maximum when the tracking control locates at the center. If not maximum, set up to ensure that RF envelope output becomes the maximum by turning the (+) type driver ($\varnothing 3 \sim \varnothing 4$) on the base A/C groove. 	<p>Connection Diagram</p> <p>Waveform</p>		

8. Check of Traveling Device after Deck Assembly

8-1. Audio, RF Normalization Time (Locking Time) Check in Play after CUE or REV

Fixtures and tools used	Measuring standard	Connection position	VCR (VCP) status
<ul style="list-style-type: none"> Oscilloscope 6H 3KHz Color Bar Standard Test tape Stop Watch 	<ul style="list-style-type: none"> RF Locking Time: Within 5 seconds Audio Locking Time : Within 10 seconds 	<ul style="list-style-type: none"> CH-1: PB RF Envelope CH-2: Audio output RF Envelope output point Audio output jack 	<ul style="list-style-type: none"> Play the 6H 3KHz Color Bar Standard Test tape.
Checking Procedure			
1) Check that locking time of the RF and Audio waveform is fallen within the measuring standard in conversion of the play mode from the CUE or the REV mode.	2) Readjust the paragraph 5 and 6 if it deviates from the standard.		

8-2. Check of Tape Curl and Jam Status

Fixtures and tools used	Fixtures and tools used	Fixtures and tools used
<ul style="list-style-type: none"> T-160 Tape T-120 Tape 	<ul style="list-style-type: none"> There must be no jam or curl at the first, middle and end position of tape. 	<ul style="list-style-type: none"> Travel the tape at the position of its first and end.
Checking Procedure		
1) Check there is no abnormality of every traveling post status.	occurrence of folding of the bottom tape. There must be not abnormality of audio signal in damage of the top tape.	
2) There must be no abnormal operation of the counter in	3) If there is abnormality, readjust the adjustment paragraph 4 and 5.	

PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

1. Checking Points prior to Repair

Following abnormal phenomena may be repaired by removal of foreign materials and oil supply. Check oiling is required at the checking set or cleaning status is complete. Determine that necessity of checking and repair the set exists after checking the using period of the set together with the user. In this case, followings must be checked:

Phenomena	Checking Points and Cause	Replacement
Color beat	Pollution of Full-Erase Head	○
S/N, Color Faded	Pollution of Video Head	○
Horizontal, Vertical Jitte	Pollution of Video Head or Tape Transport System	○
Poor Sound, Low Sound	Pollution of Audio/Control Head	○
No tape wound or tape wound loosely. FF or REW impossible, or slow turning	Pollution of Pinch Roller or Belt Capstan Belt	○
Tape loosely wound in REV or Unloading	Deterioration of Clutch Assembly D37 Torque Pollution of Drum and Traveling Device	○

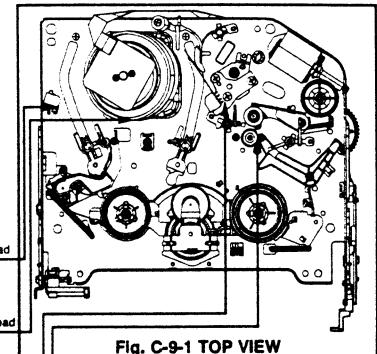


Fig. C-9-1 TOP VIEW

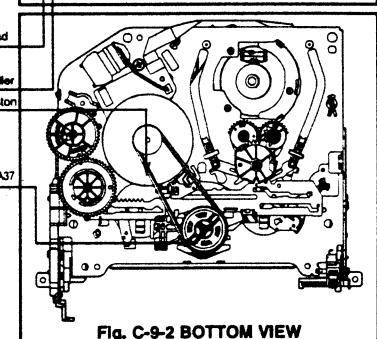


Fig. C-9-2 BOTTOM VIEW

CAUTIONS

If operation of the position with (O) mark is abnormal even after removing cause, replace it with substitute product since it shows damage or wearing.

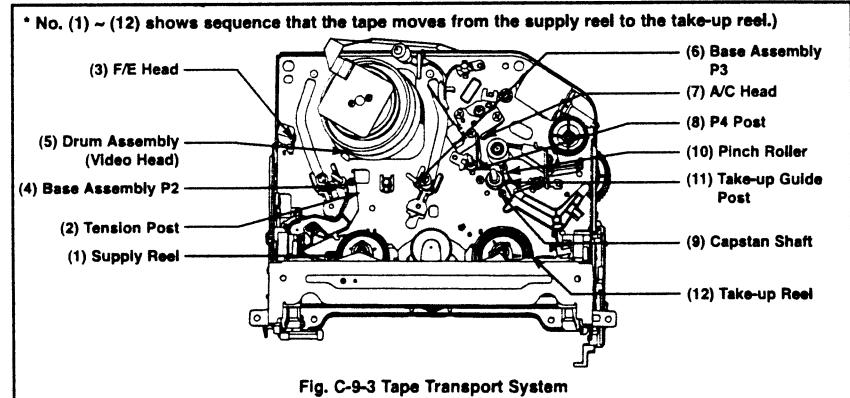


Fig. C-9-3 Tape Transport System

PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

2. Essential Check and Repair

Recording density of the video is far higher than the audio. Therefore video parts are very precise so as to allow only error of 1/1000mm or so in order to maintain compatibility with other videos.

If one of these parts is polluted or old, same phenomena will appear as they are damaged.

To maintain clear screen, regular check, replacement of old and damaged parts and oil supply, etc are essential.

3. Regular Check and Repair

Check and repair schedule is not constant since they vary depending on method that the consumer uses video and environment where the video is installed at.

However, for the video used by common household, good screen will be maintained if regular check and repair per 1,000 hour is performed. The following chart shows relationship between using time and checking time:

Table 1

Time Requiring Checking	About 1 year	About 18 months	About 3 years
Average hours used per day			
One hour			
Two hours			
Three hours			

4. Tools for Check and Repair

- (1) Grease: Floil G-3114 (KANTO) or equivalent grease (Green)
- (2) Grease: Kanto G-754, PL-433 (Yellow)
- (3) Alcohol (Isopropyl Alcohol)
- (4) Cleaning Patch (cloth)

5. Maintenance Process

5-1) Removal of Foreign Material

- (1) Removal of foreign material from video head (Fig. C-9-4)
Firstly try to use a cleaning tape.

Use a cleaning patch if foreign materials are not removed with the cleaning tape due to severe dirty of the head. Soak the cleaning patch in alcohol and put it to the head tip. Smoothly turn the drum (turning cylinder) to the right or left (In this case, the cleaning patch must not be moved vertically).

After completely drying the head, test the traveling status of the tape.

If alcohol (Isopropyl Alcohol) remains at the video head, the tape may be damaged when this solution touches with the head surface.

Never use a cloth bar (commercial sale)

- (2) Wipe the tape transport system and the drive system with the cleaning patch soaked in alcohol (Isopropyl Alcohol) when removing foreign materials from them.
 - 1) The part touched with the traveling tape is called as tape transport system. The drive system consists of parts to travel the tape.
 - 2) Care must be exercised so that unreasonable force to change the pattern will be applied to the tape transport system during removal of foreign materials.

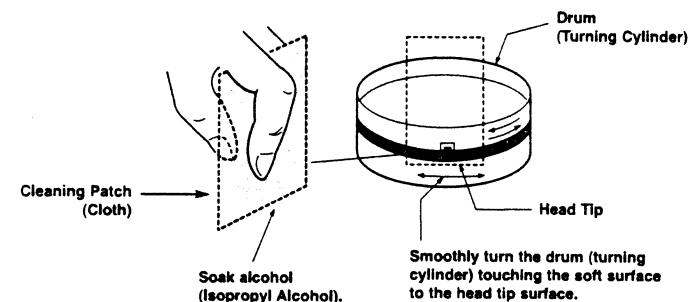


Fig. C-9-4

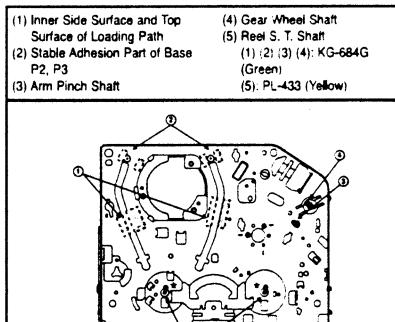
PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

5-2) Grease Applications

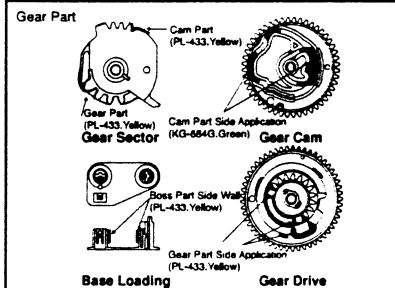
(1) Grease Application Method

Apply grease by using a cloth swab or brush. Care must be exercised so that excess quantity should not be used. If the excessive quantity is applied, wipe it with the gauze soaked in alcohol (Isopropyl Alcohol).

NOTE: POSITION OF GREASE APPLICATION



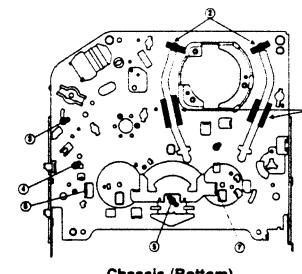
Chassis (TOP)



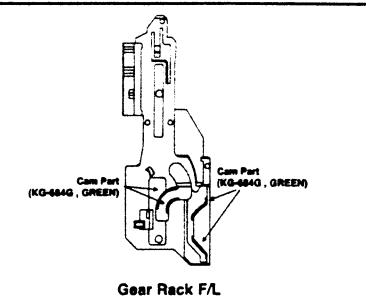
(2) Regular Grease Application

Apply grease to the designated application position every 500 hour.

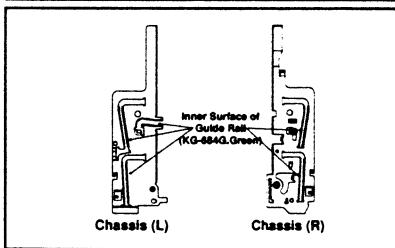
(1) Inner Side Surface and Top Surface of Loading Path	(6) Guide Part on the Plate Slider Side Wall (Left)
(2) Stable Adhesion Part of Base P2, P3 Coil	(7) Guide Part on the Plate Slider Side Wall (Right)
(3) Gear Cam Shaft	(1) (2) (3) (4) (5) (6) (7): KG-684G (Green)
(4) Gear Drive Shaft	
(5) Clutch Shaft Groove	



Chassis (Bottom)

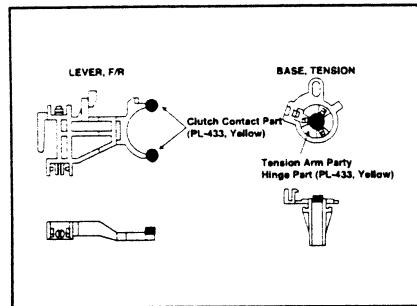


Gear Rack F/L

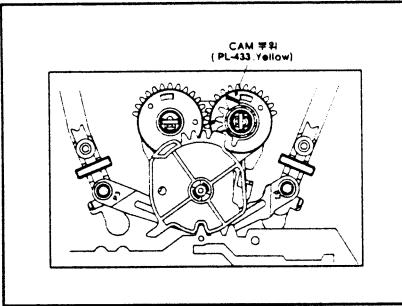


PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION

Lever, F/R, Base, Tension



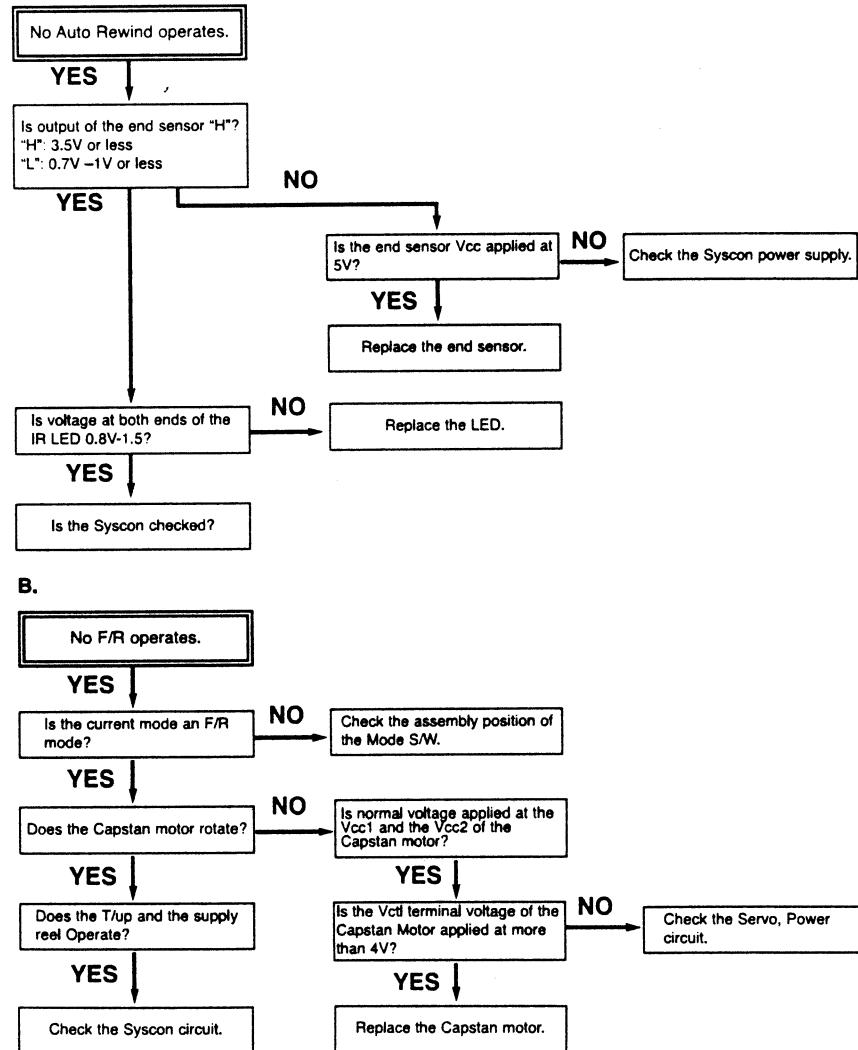
GEAR AY, P2 & P3



MECHANISM TROUBLESHOOTING GUIDE

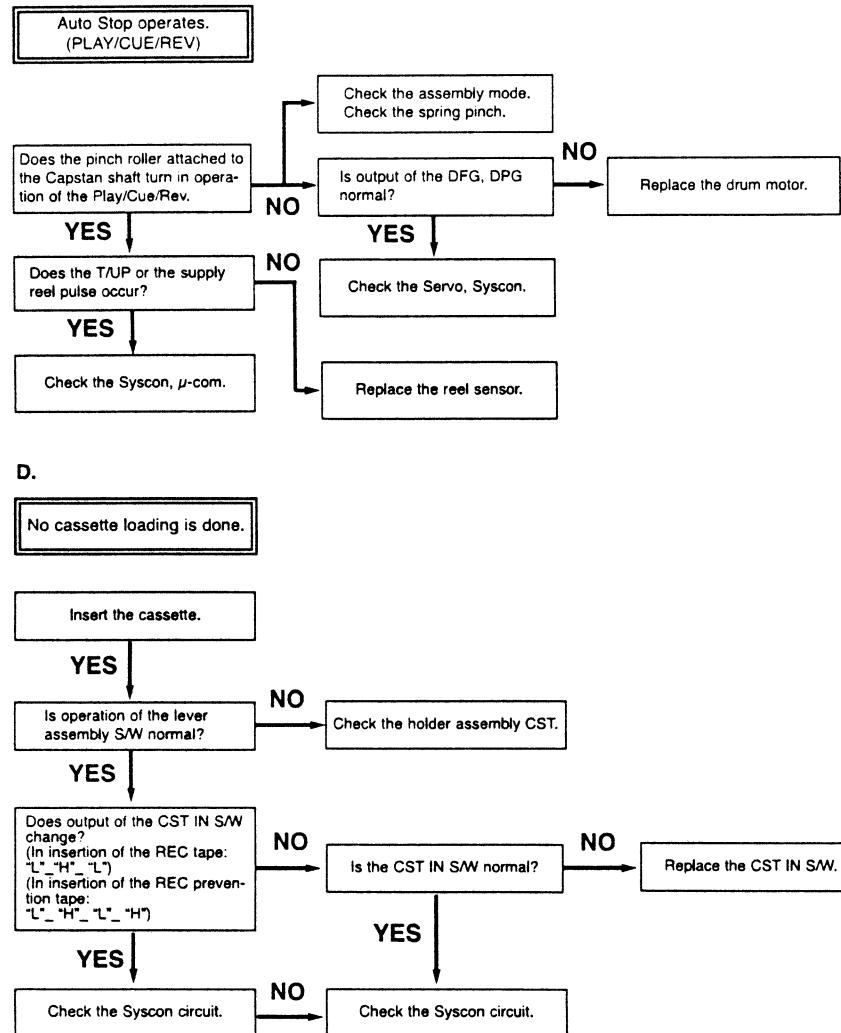
1. Deck Mechanism

A.

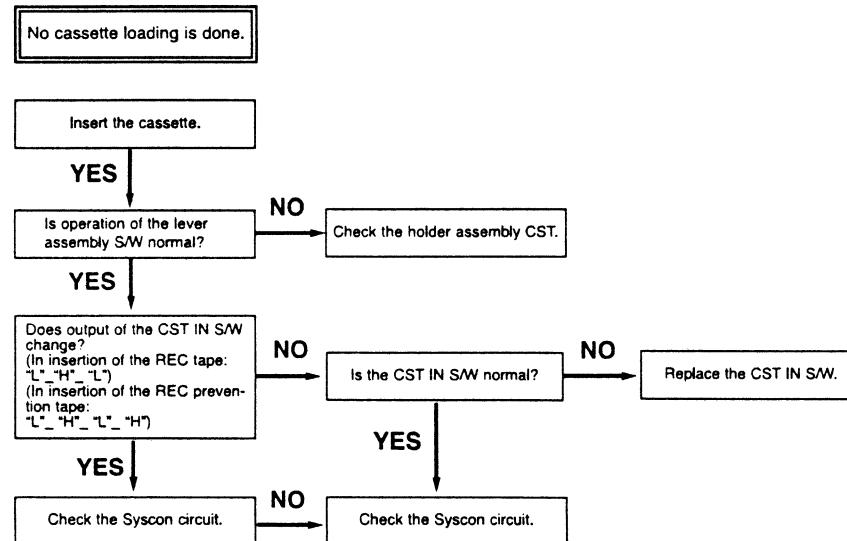


MECHANISM TROUBLESHOOTING GUIDE

C.

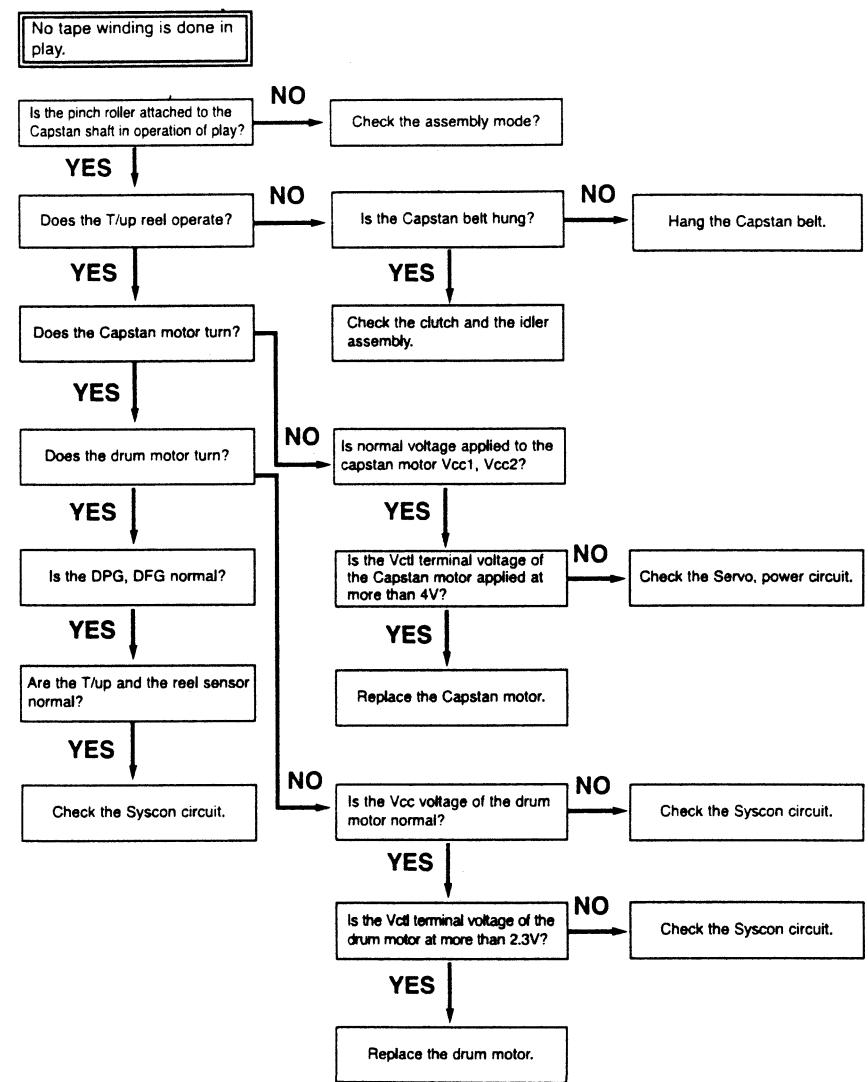


D.



MECHANISM TROUBLESHOOTING GUIDE

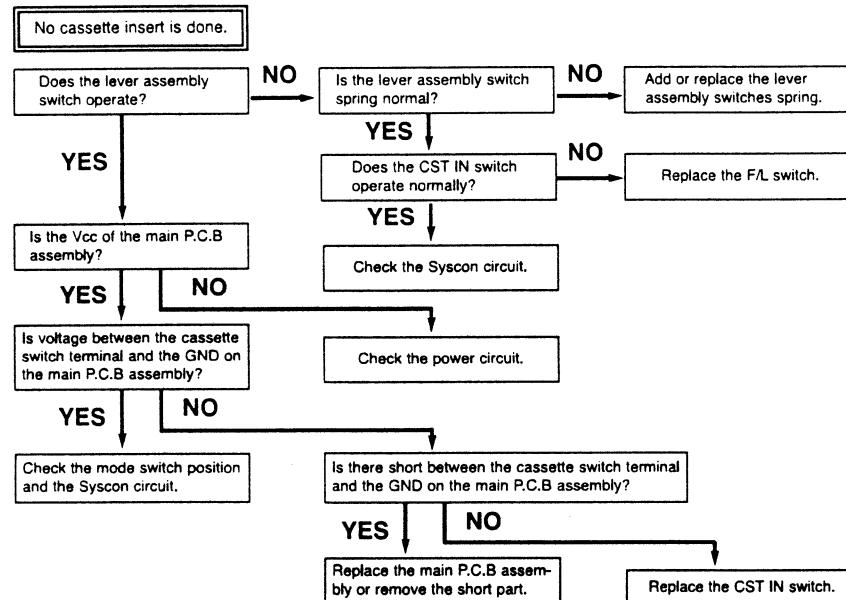
E.



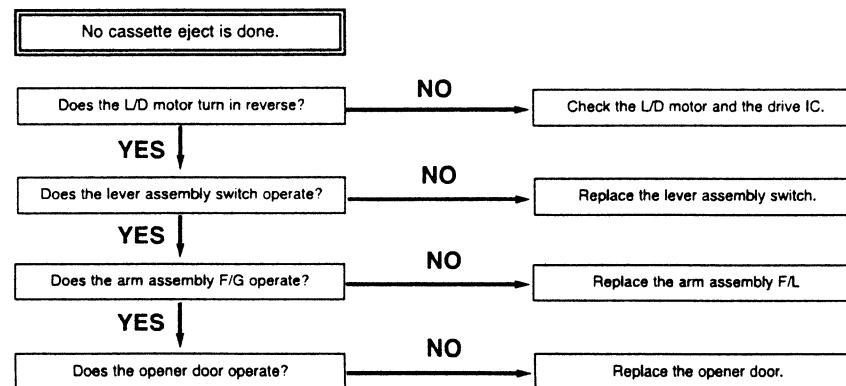
MECHANISM TROUBLESHOOTING GUIDE

2. Front Loading Mechanism

A.

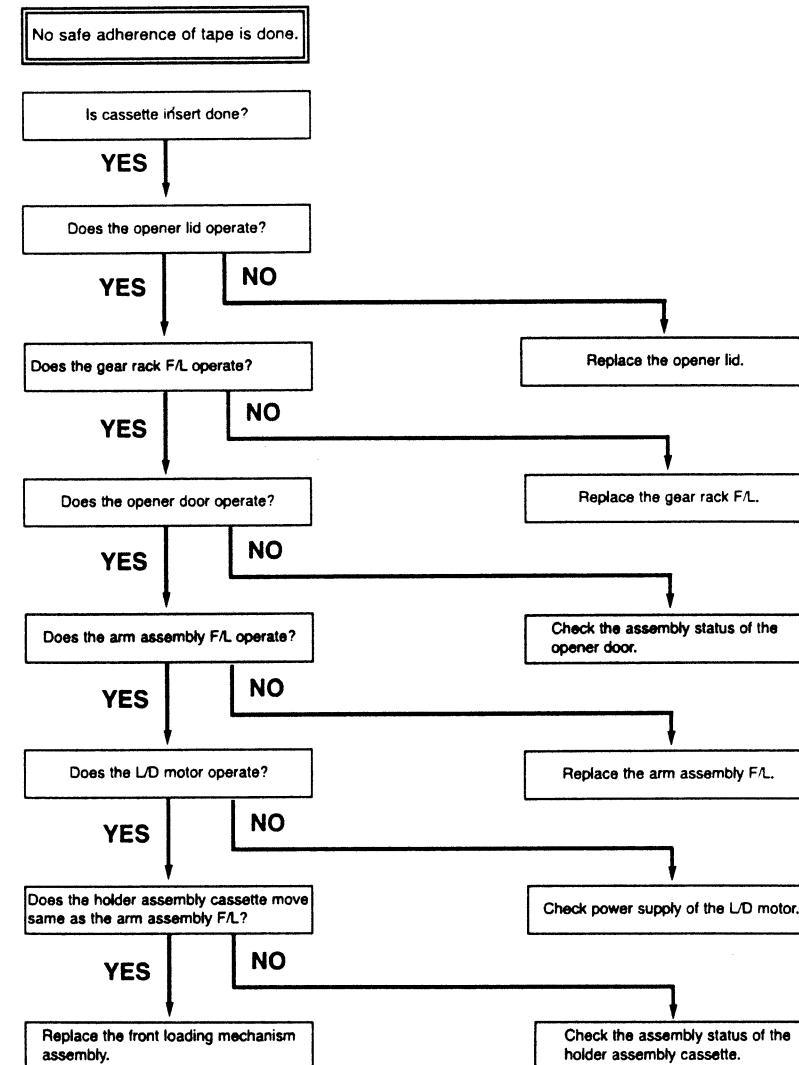


B.



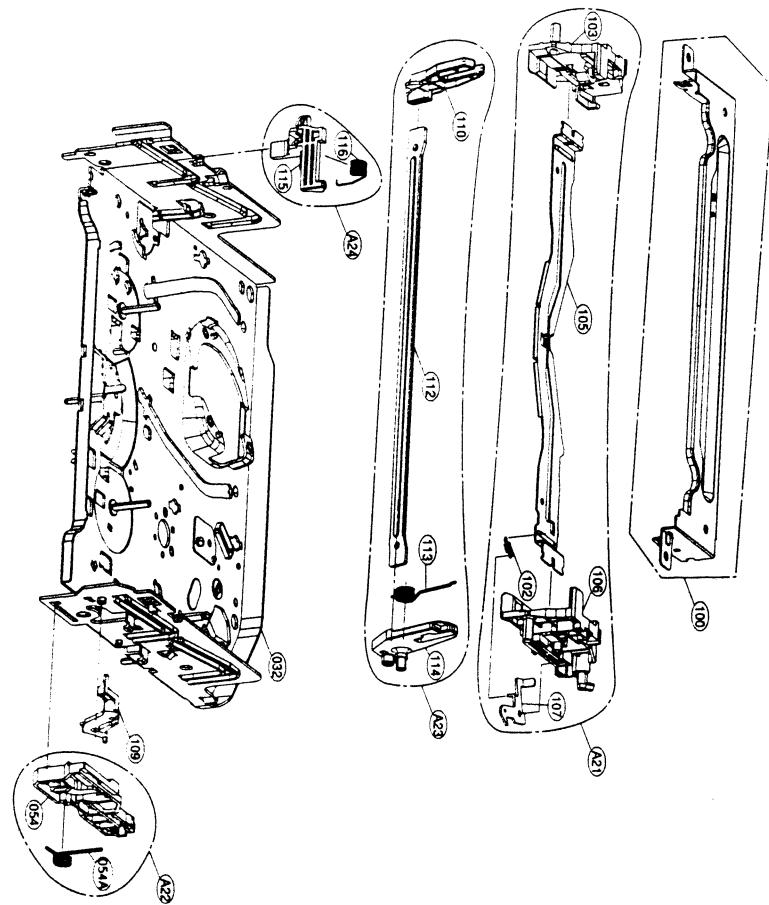
MECHANISM TROUBLESHOOTING GUIDE

C.



EXPLODED VIEWS

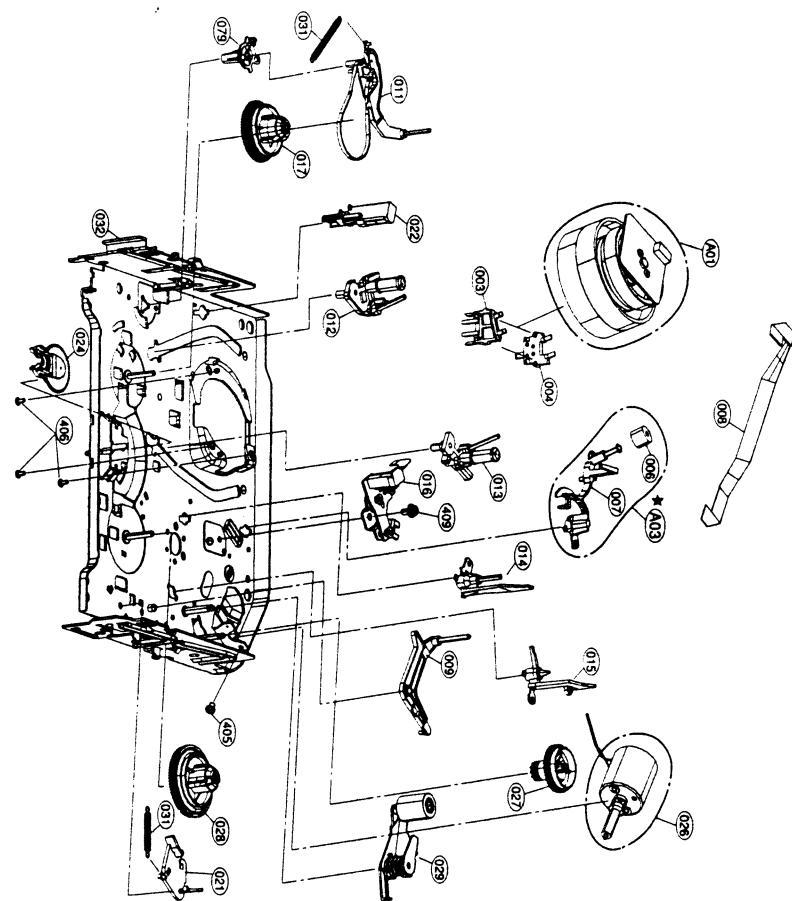
1. Front Loading Mechanism Section



EXPLODED VIEWS

2. Moving Mechanism Section (1)

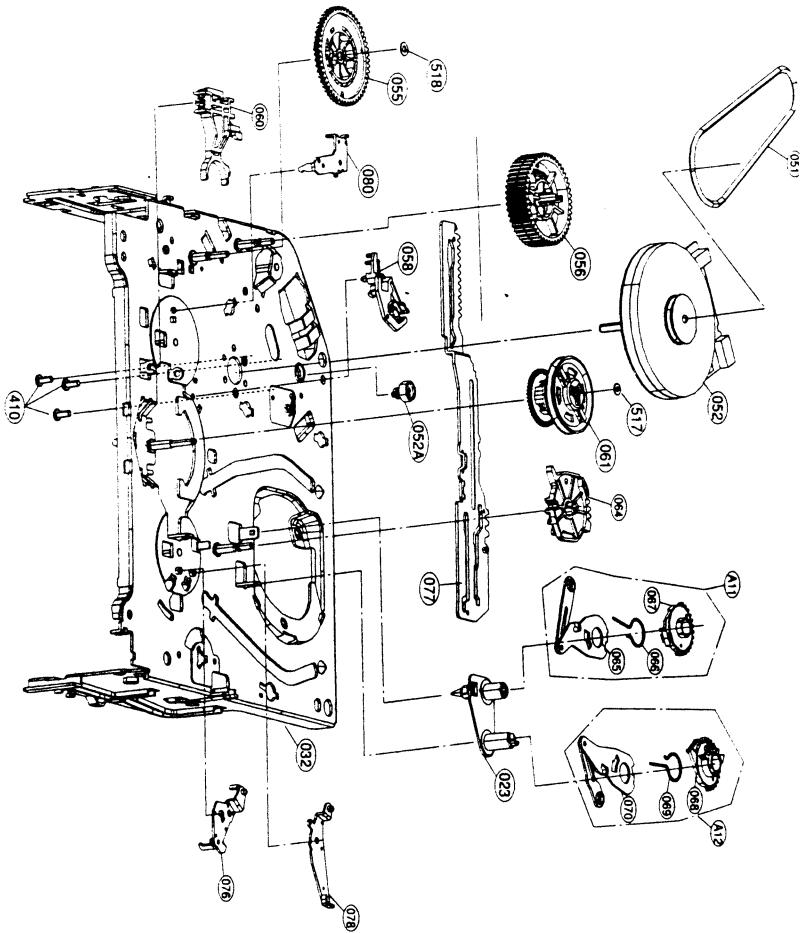
★ OPTIONAL PART



EXPLODED VIEWS

MEMO

3. Moving Mechanism Section (2)



SECTION 5

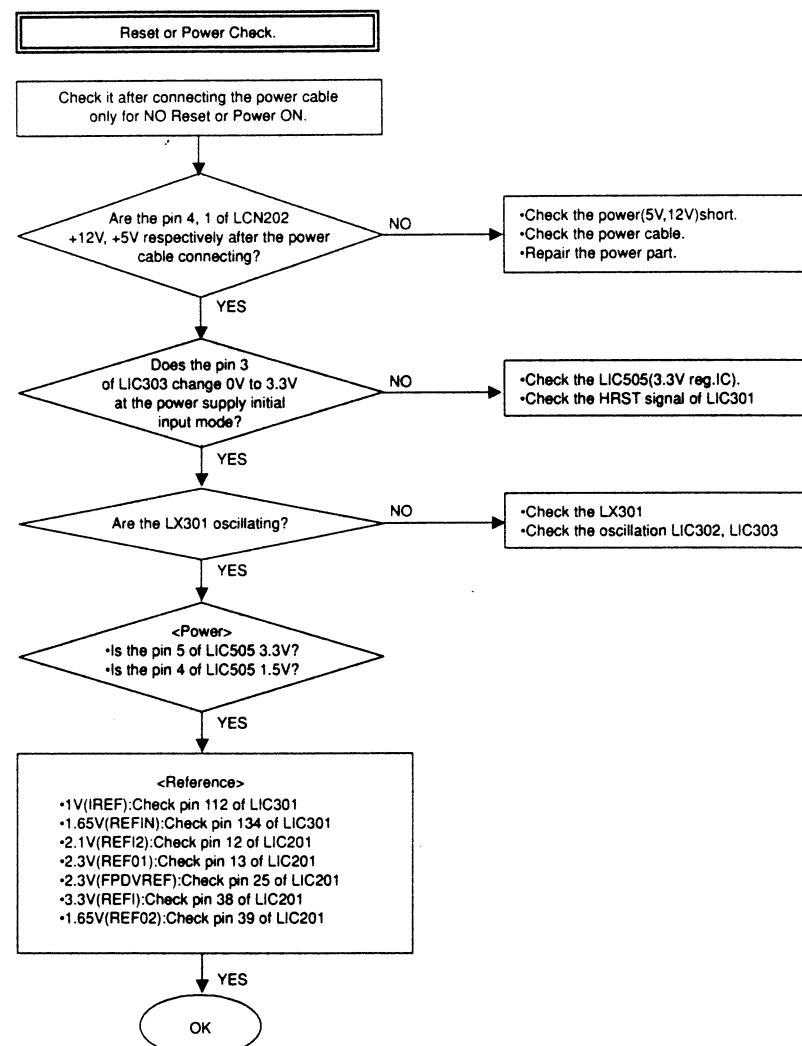
RL-02A LOADER PART

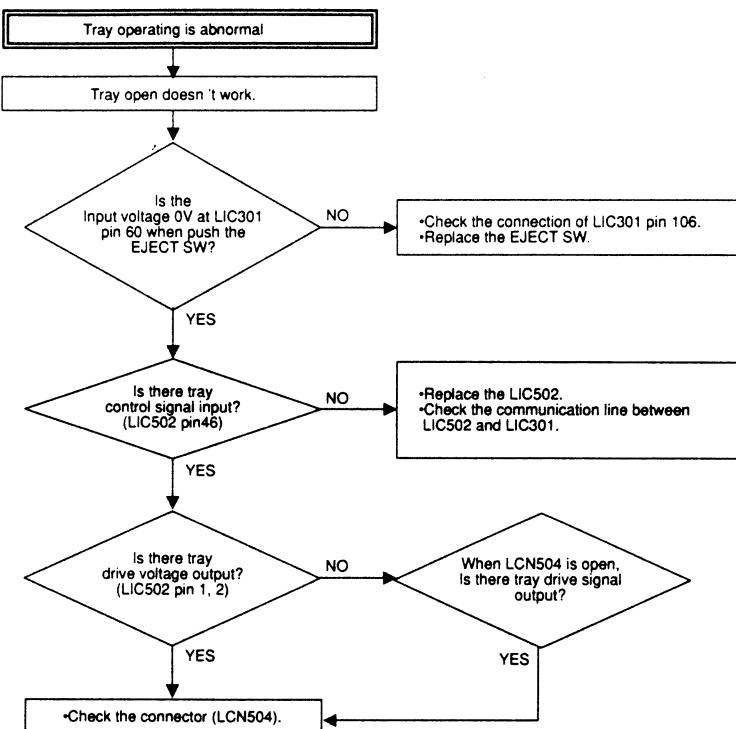
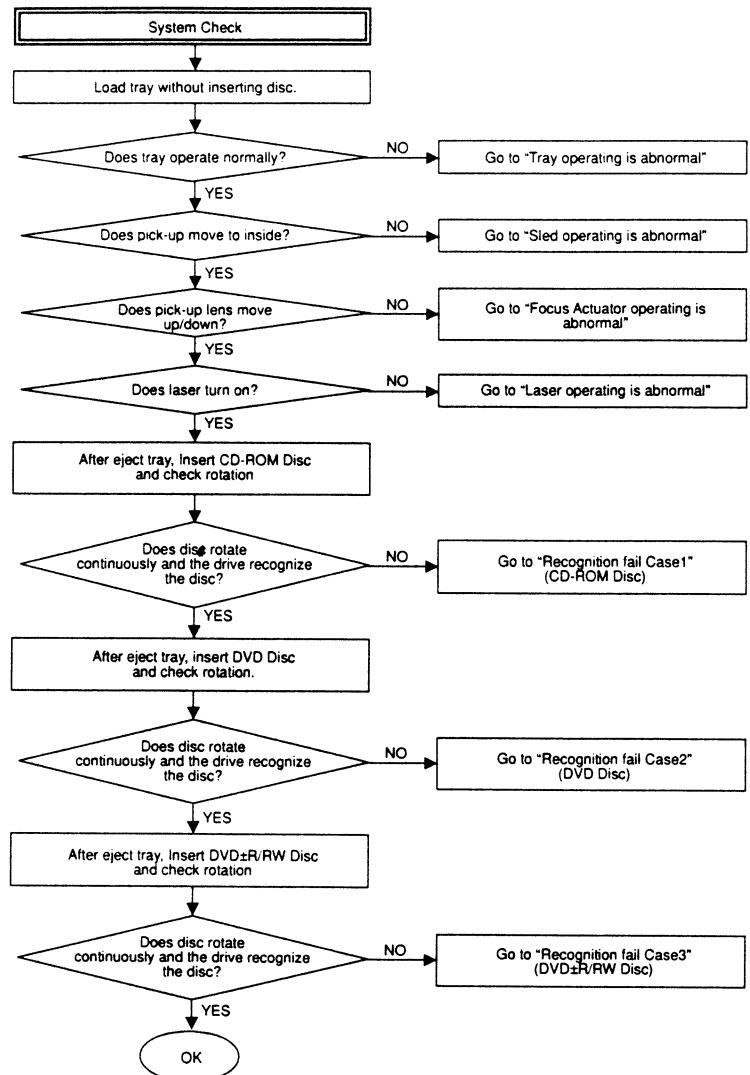
Note: It is not recommended for component repair on this RL-02A Loader Module but to replace the complete loader when it becomes defective.
The information in this section is published for reference only.

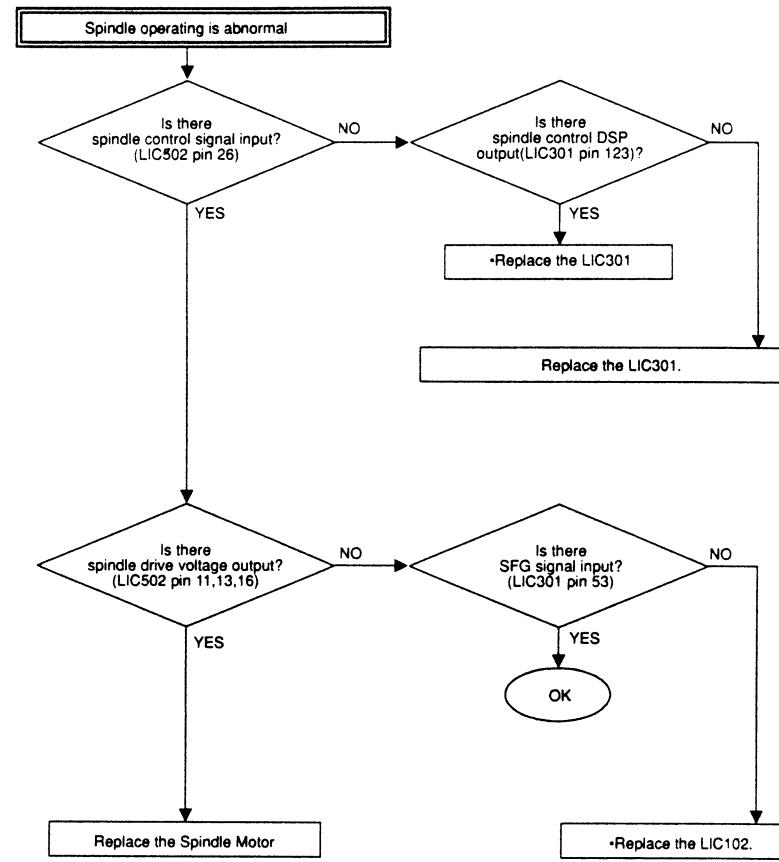
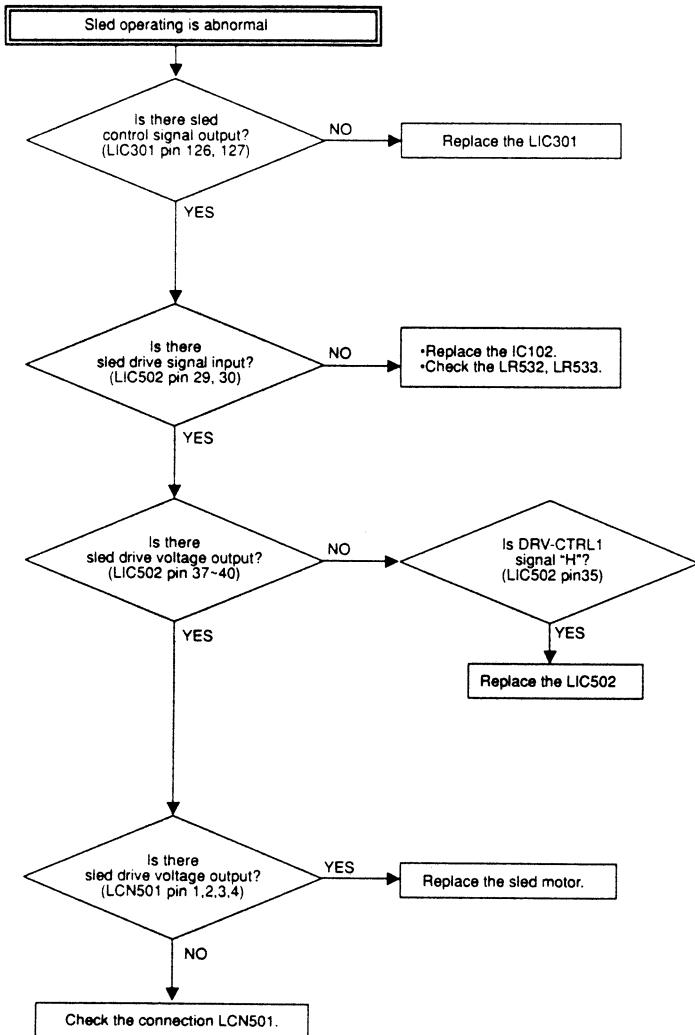
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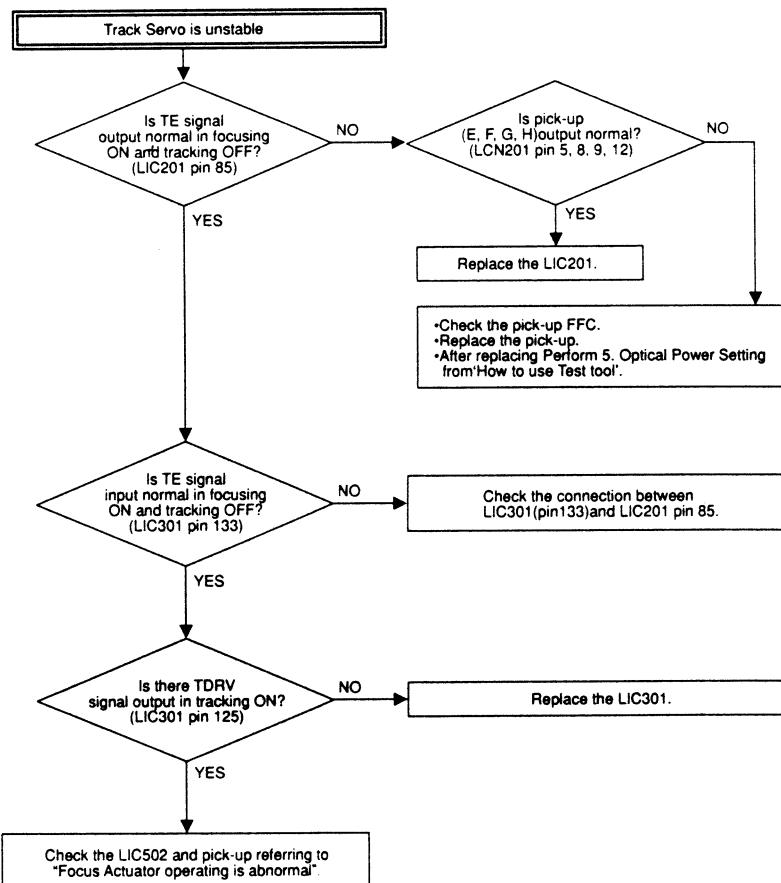
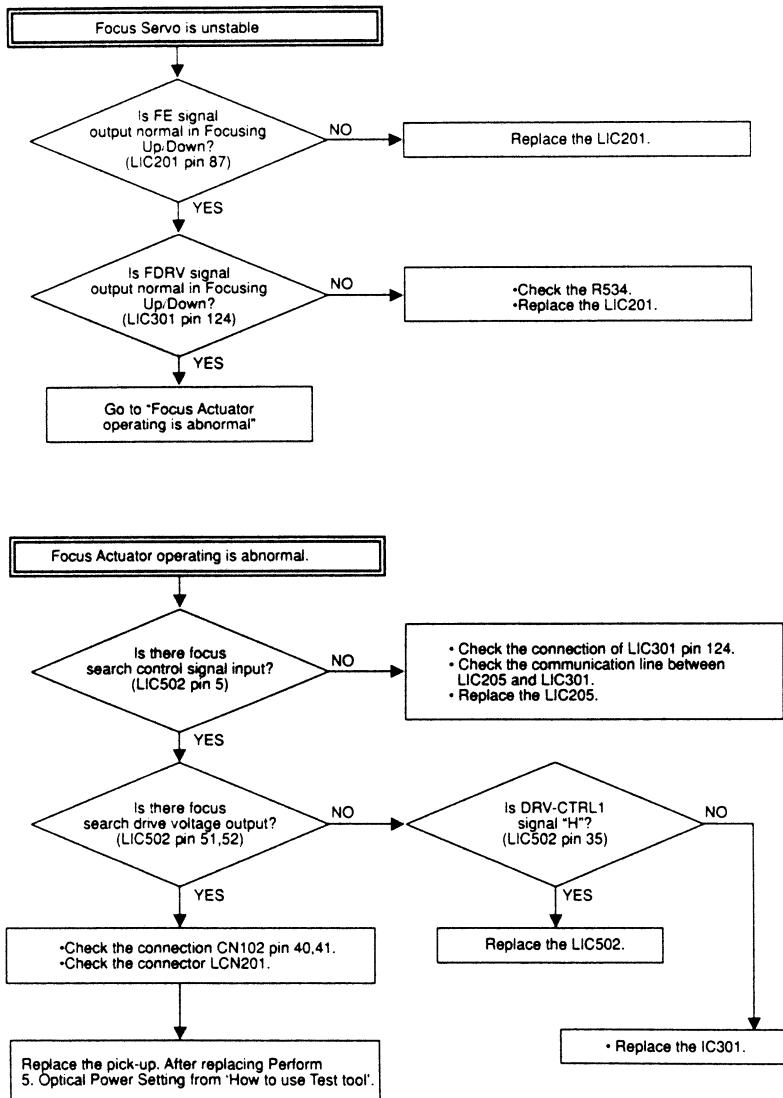
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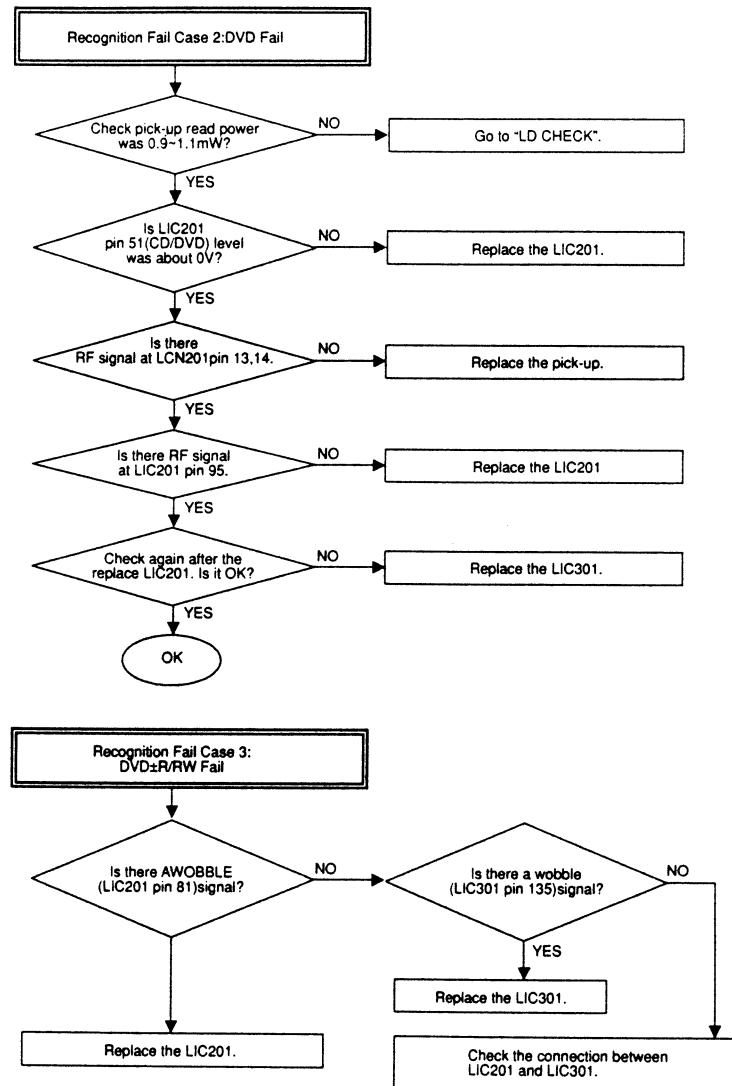
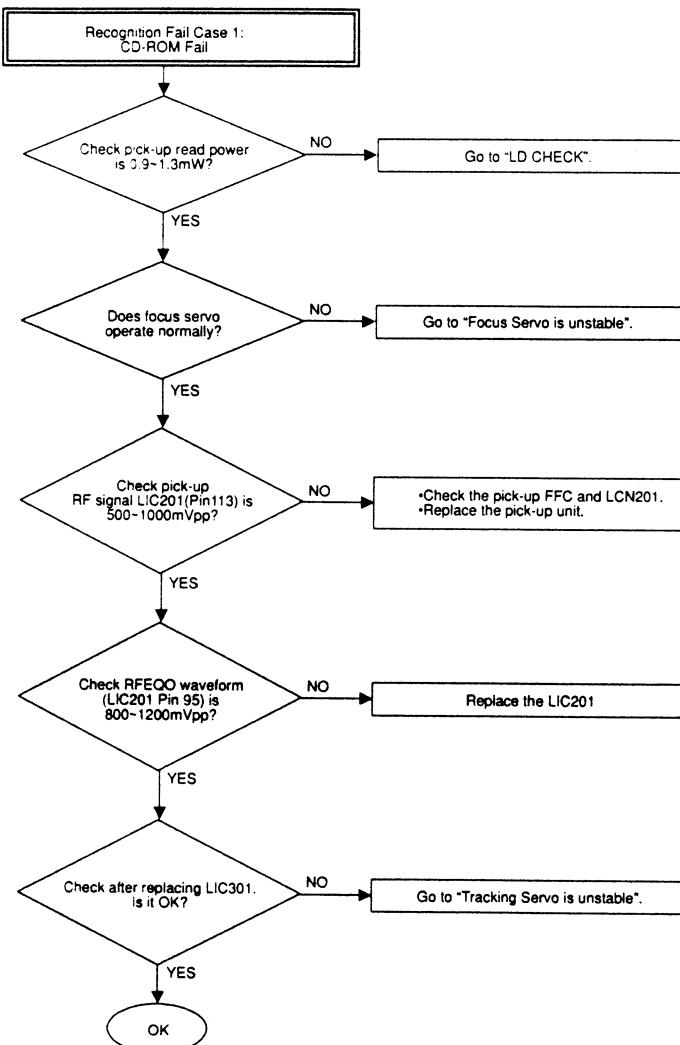
ELECTRICAL TROUBLESHOOTING GUIDE

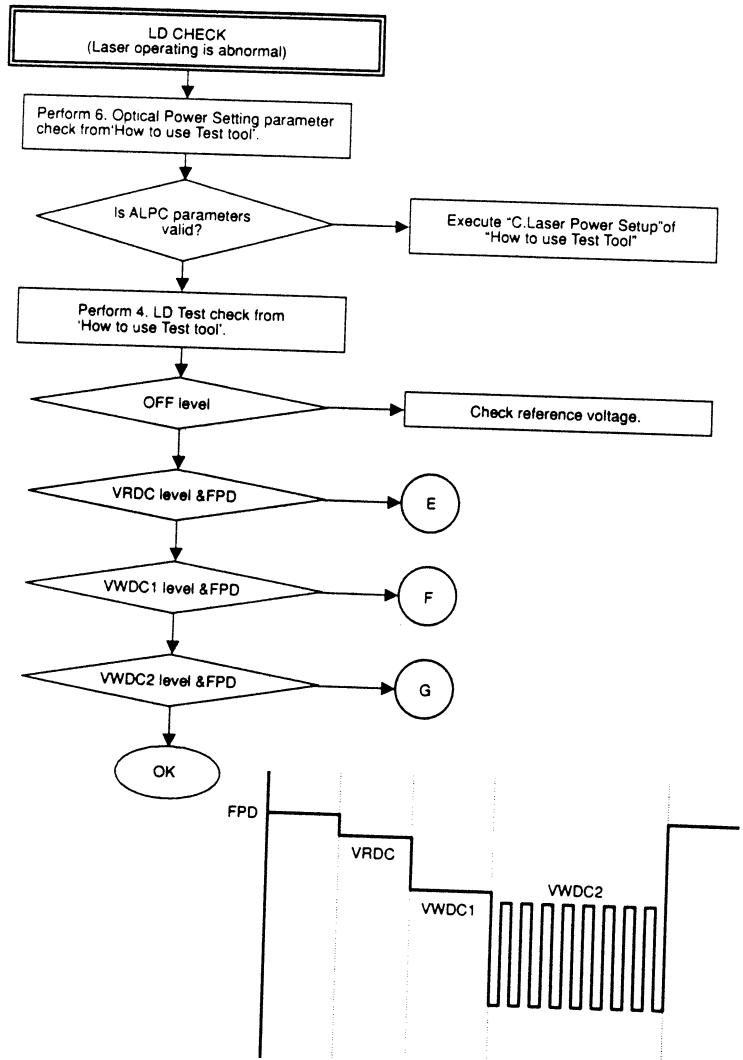




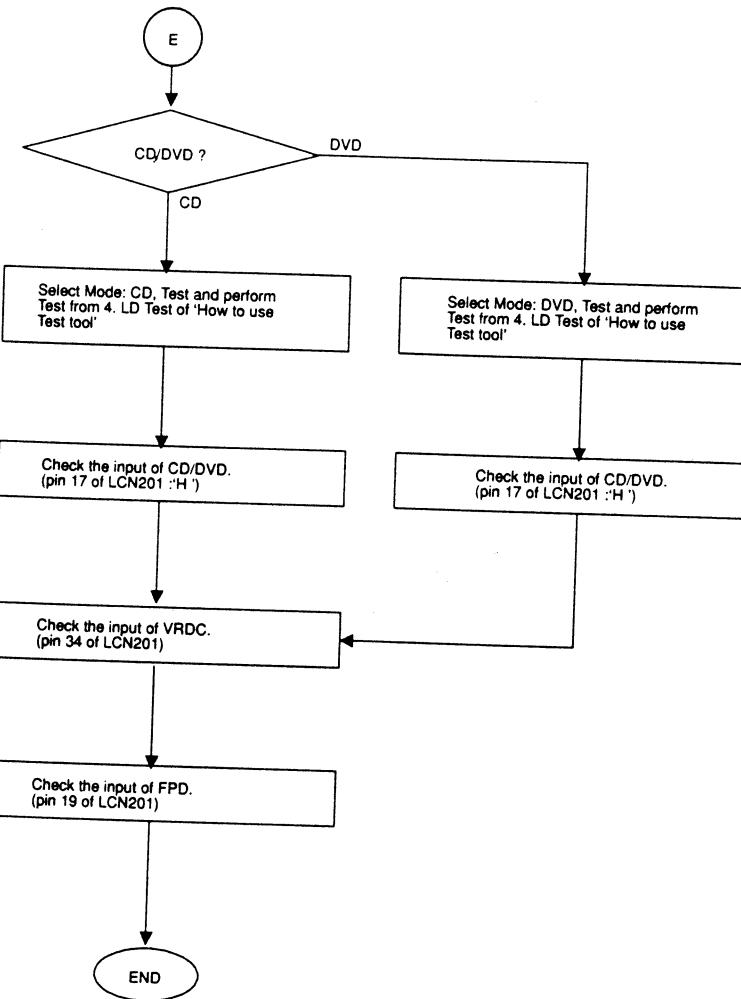




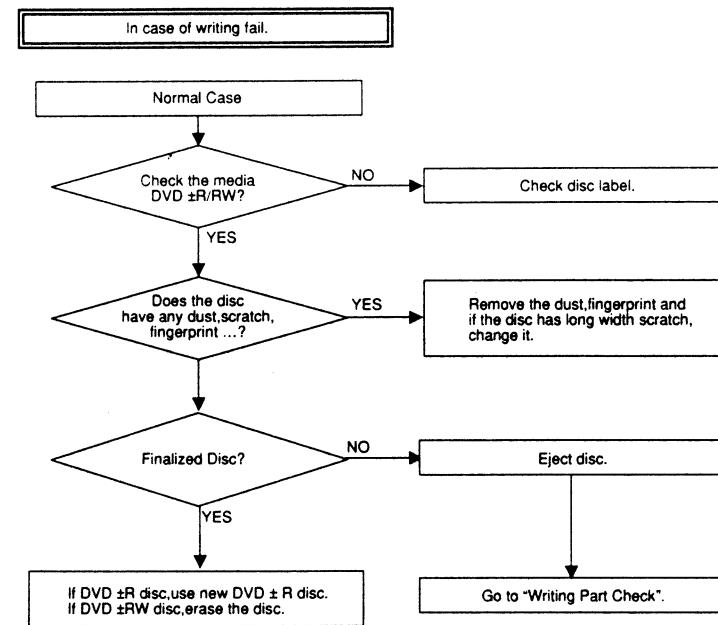
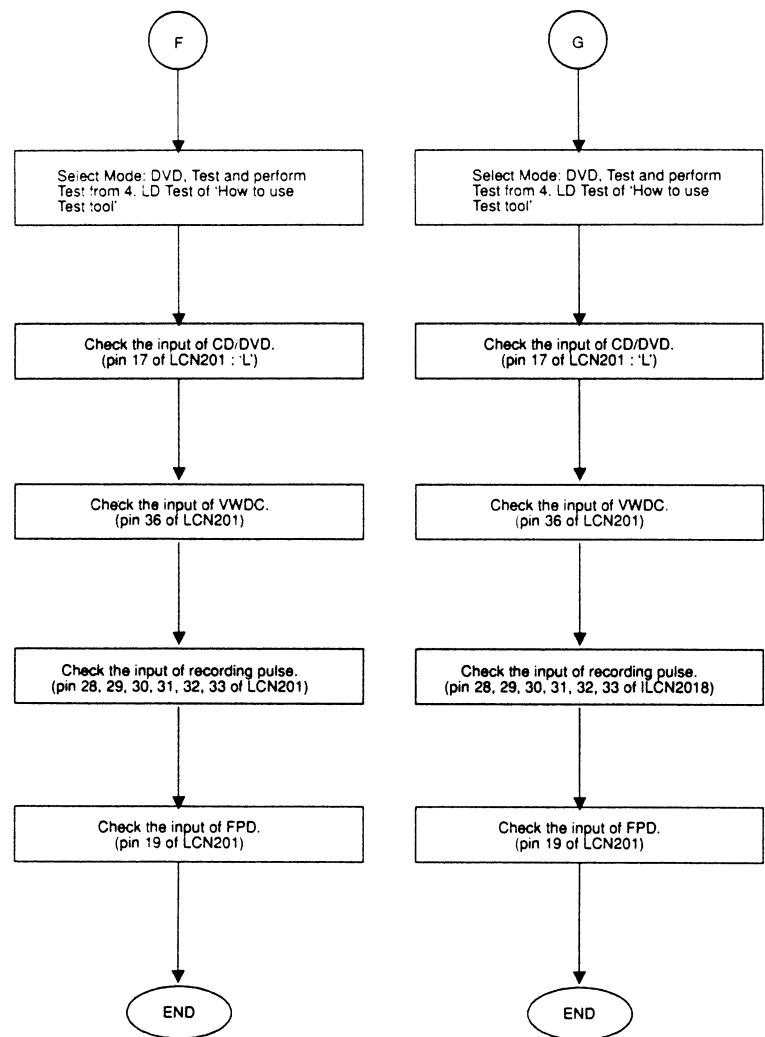




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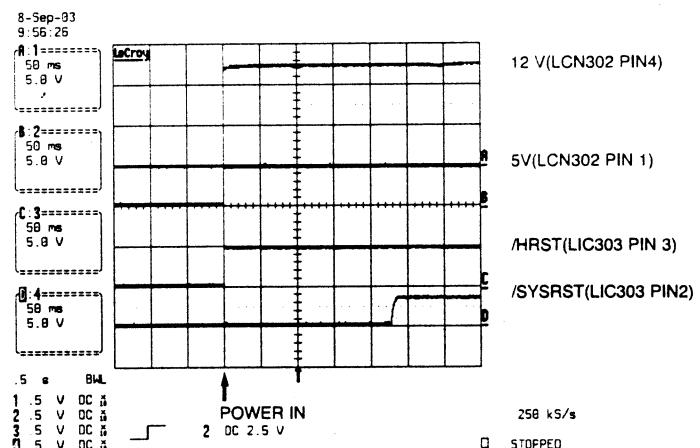


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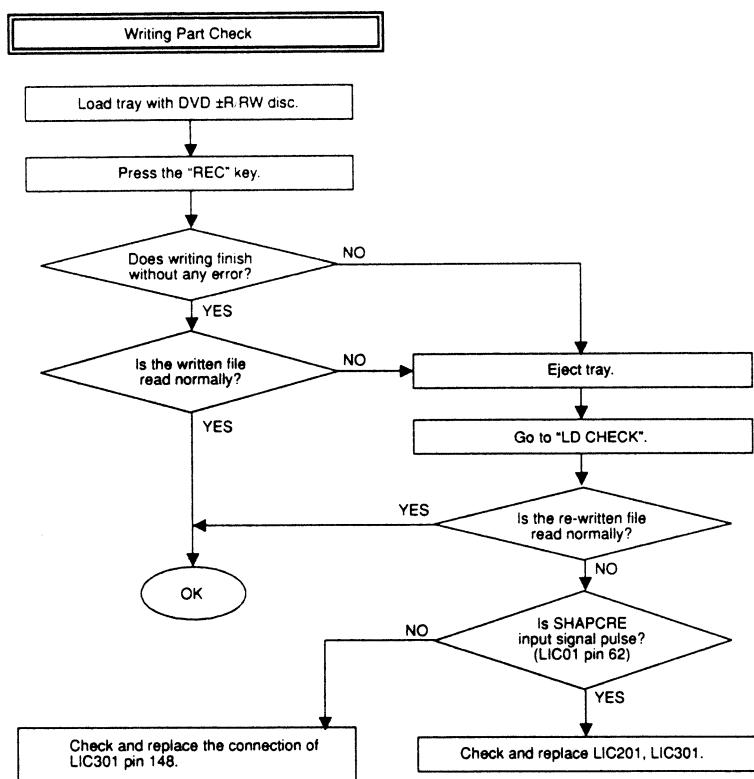
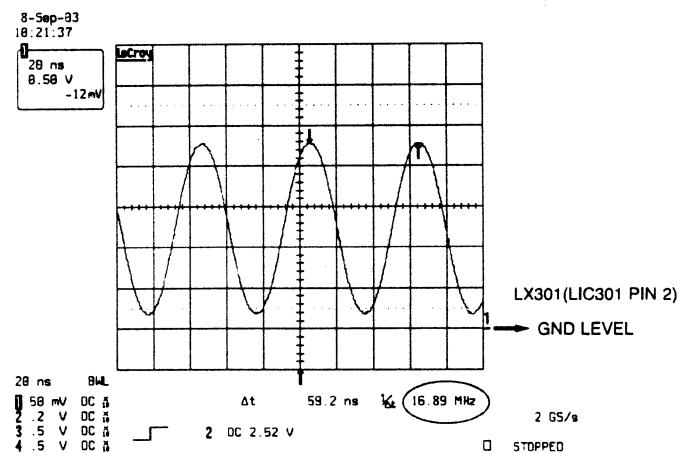


WAVEFORMS

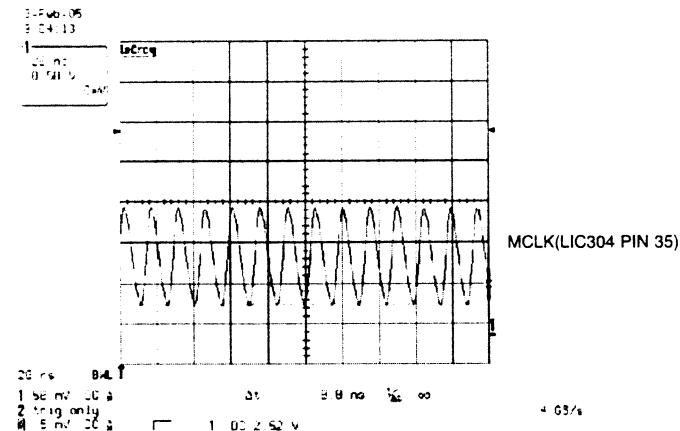
1. POWER & RESET Signal



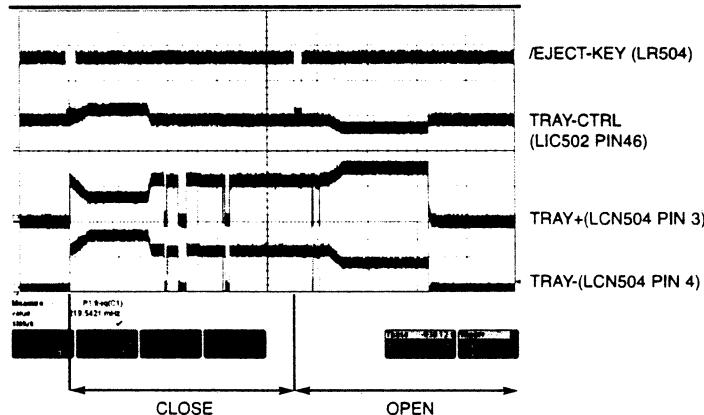
2. Main Clock1 for IC202 (16.9MHz)



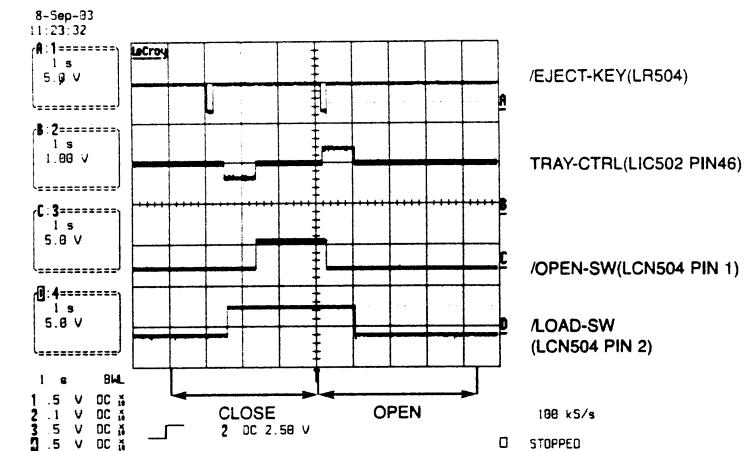
3. SDRAM Clock



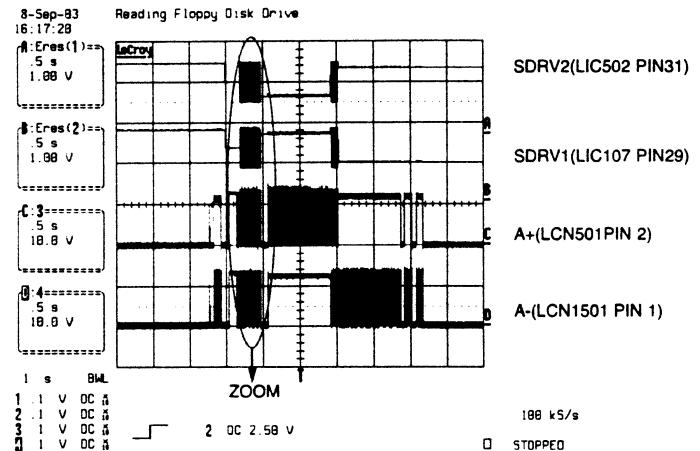
4. TRAY OPEN/CLOSE SIGNAL 1



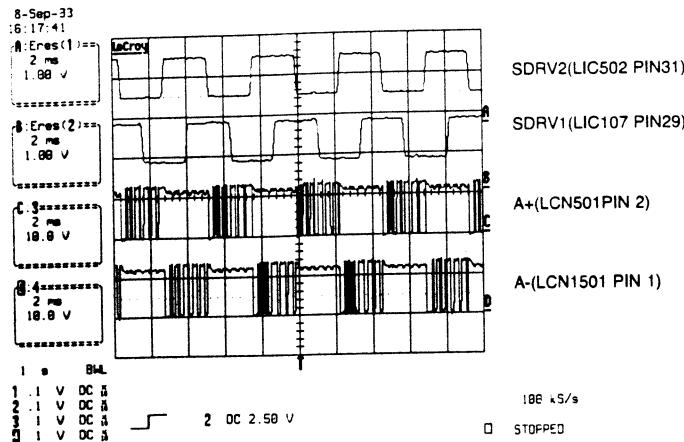
5. TRAY OPEN/CLOSE SIGNAL 2



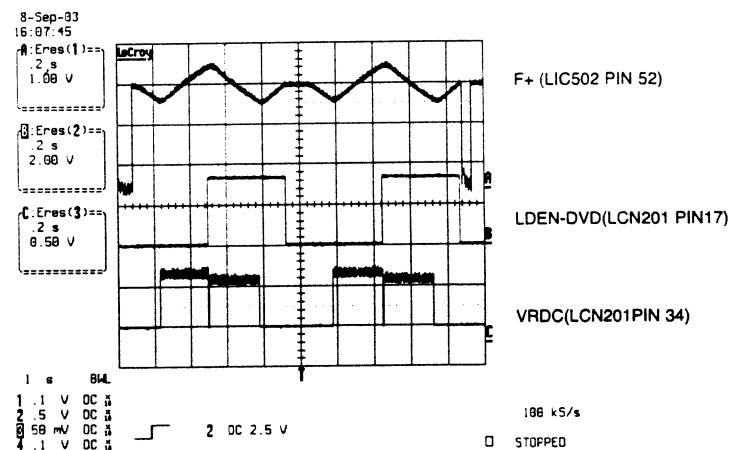
6. SLED MOVE SIGNAL 1



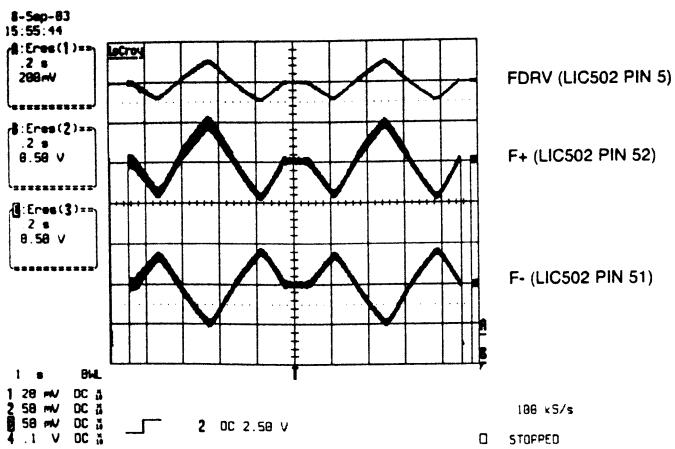
7. SLED MOVE SIGNAL 2



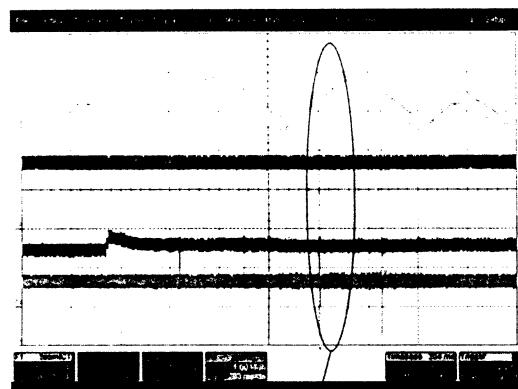
9. LASER TURN ON SIGNAL



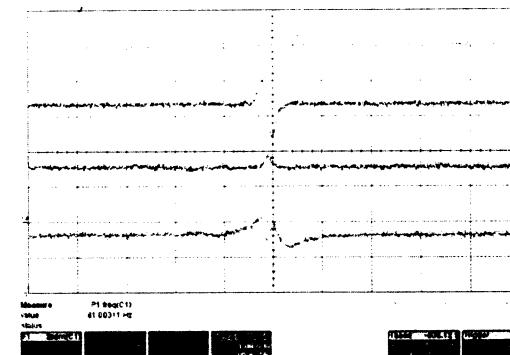
8. FOCUS SEARCH SIGNAL



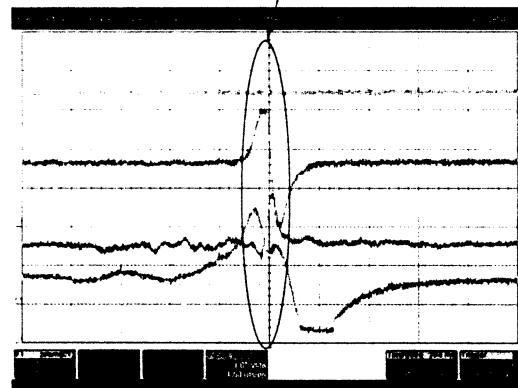
10. DISC TYPE JUDGEMENT WAVEFORM (CD SERIES)



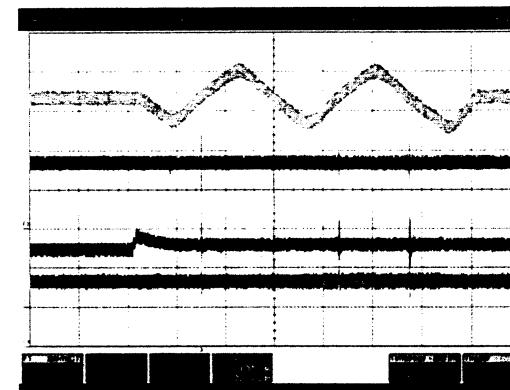
12. DISC TYPE JUDGEMENT WAVEFORM (CD-RW)



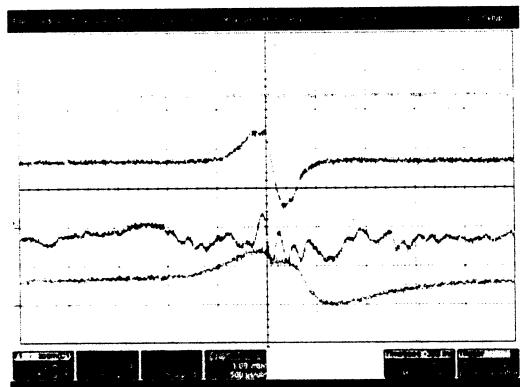
11. DISC TYPE JUDGEMENT WAVEFORM (CD&CD-R)



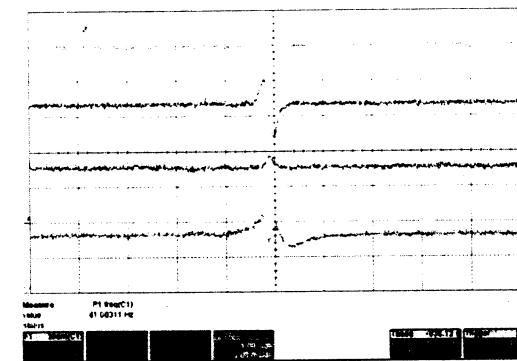
13. DISC TYPE JUDGEMENT WAVEFORM (DVD SERIES)



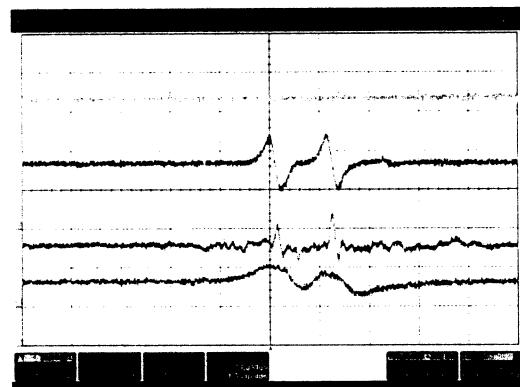
14. DISC TYPE JUDGEMENT WAVEFORM (DVD_SINGLE&R)



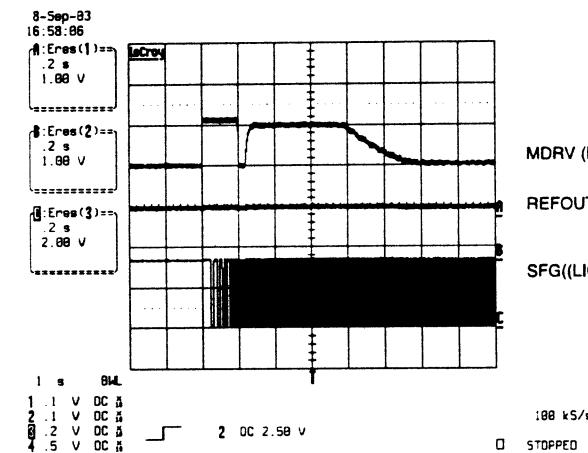
16. DISC TYPE JUDGEMENT WAVEFORM (DVDRW)



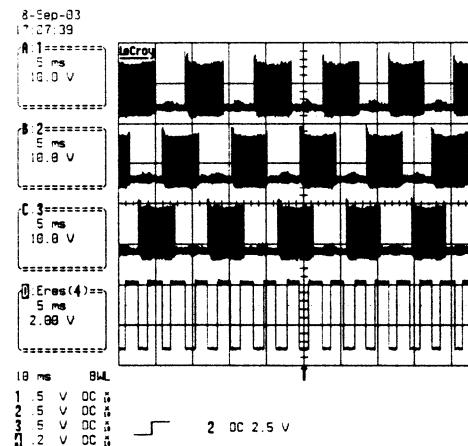
15. DISC TYPE JUDGEMENT WAVEFORM (DVD _DUAL)



17. SPINDLE WAVEFORM1

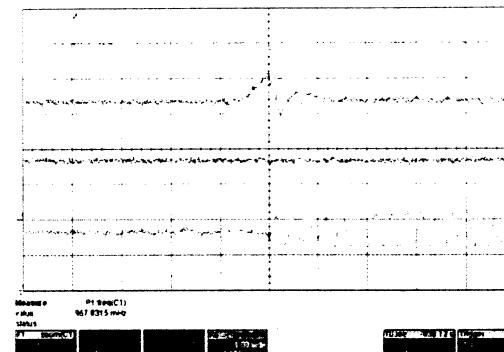


18. SPINDLE WAVEFORM2

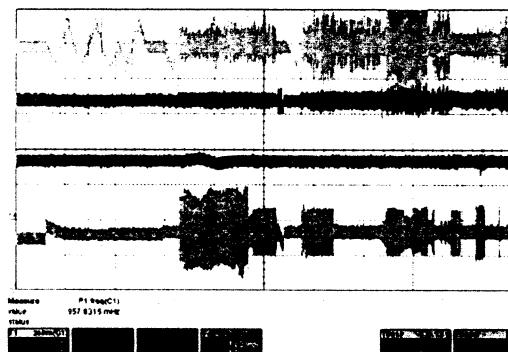


20. FOCUS ON SIGNAL(CD)

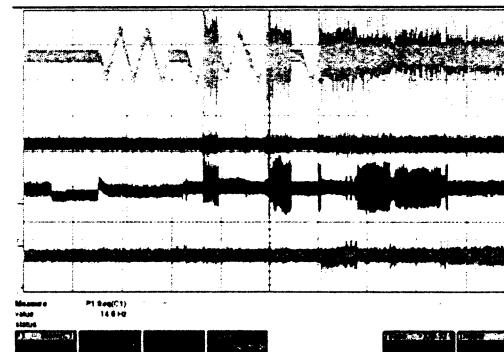
U((LIC502 PIN11))
V((LIC502 PIN13))
W((LIC502 PIN16))
SFG(LIC502 PIN43)



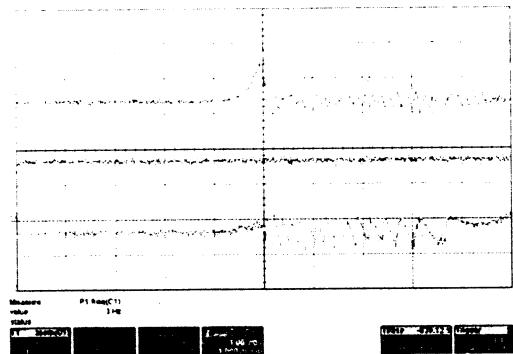
19. FOCUS ON SIGNAL(CD)



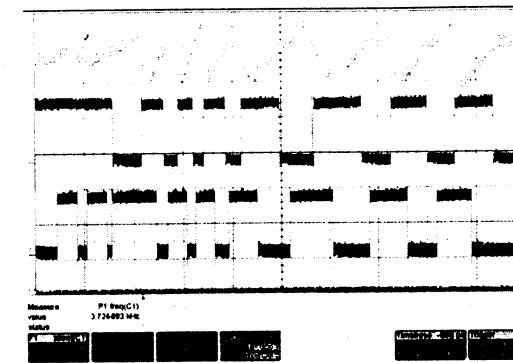
21. FOCUS ON SIGNAL(DVD)



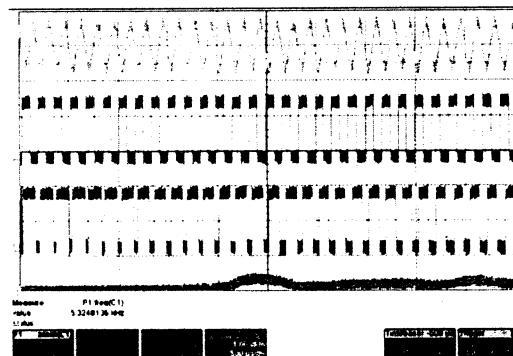
22. FOCUS ON SIGNAL (DVD)



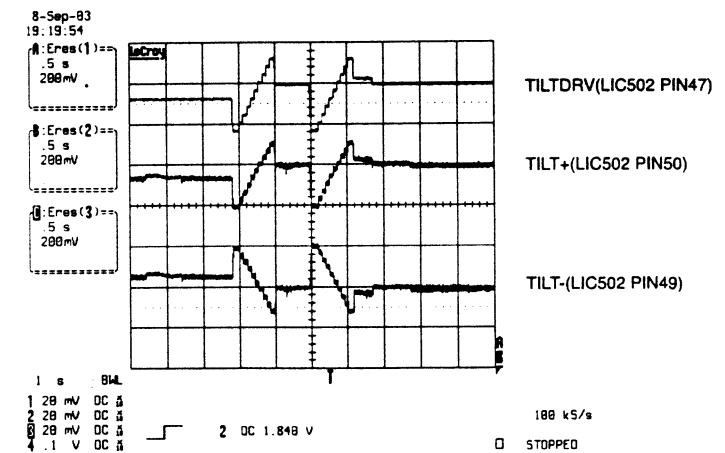
24. TRACK OFF SIGNAL(DVD)



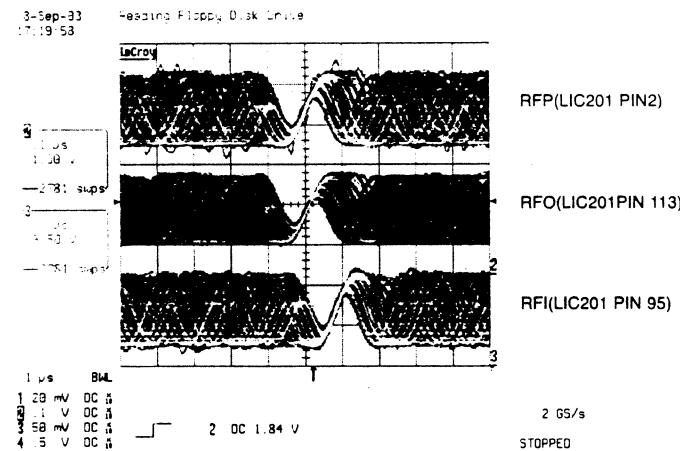
23. TRACK OFF SIGNAL(CD)



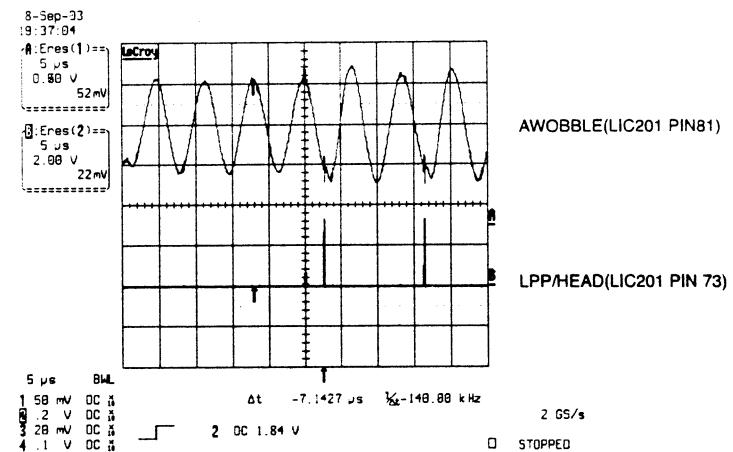
25. Tilt Driver signal(Disc reading)



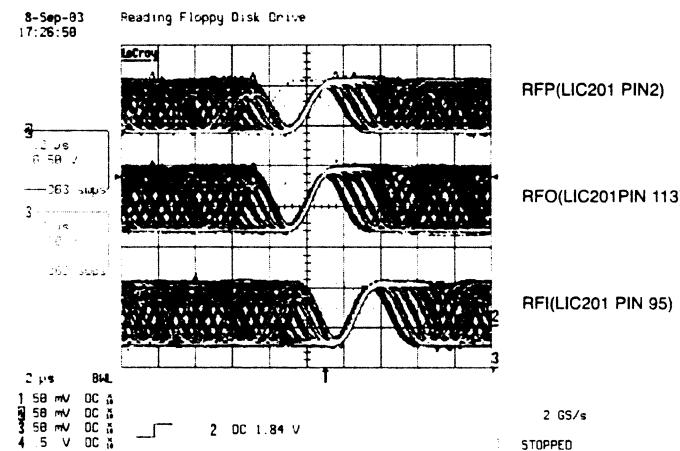
26. RF WAVEFORM(DVD)



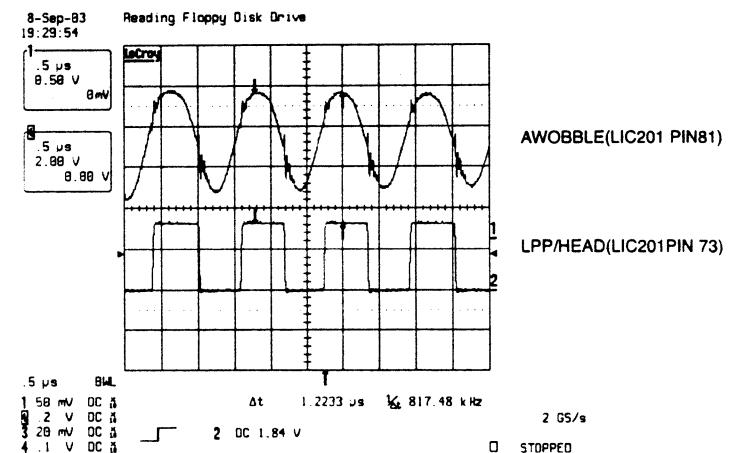
28. WOBBLE(DVD-R/RW)_READING



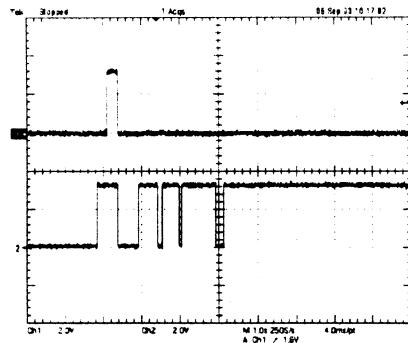
27. RF WAVEFORM(CD)



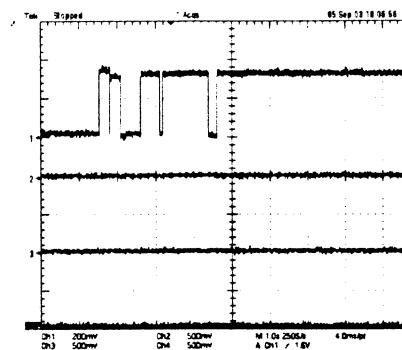
29. WOBBLE(DVD+R/RW)_READING& WRITING => X1 SPEED



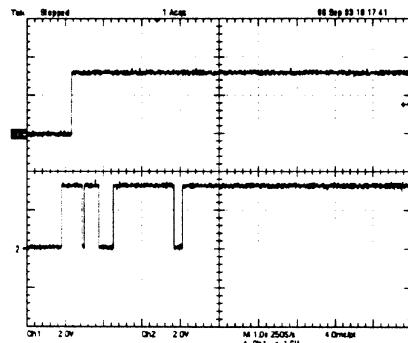
30. LD Enable(DVD)



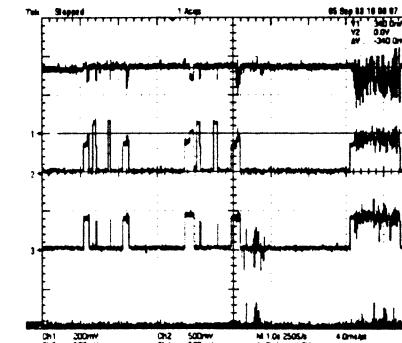
32. Laser Power(reading) _ DVD+RW



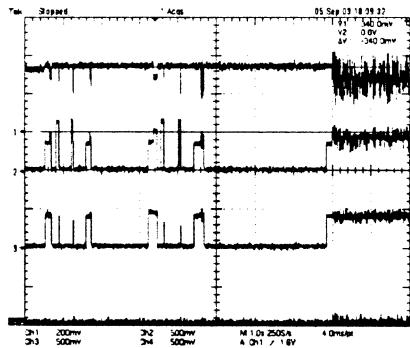
31. LD Enable(CD)



33. Laser Power(Erase) _ DVD+RW



34. Laser Power(Writing) _ initial state



VRDC(LCN201 PIN 34)

VWDC(LCN201 PIN 36)

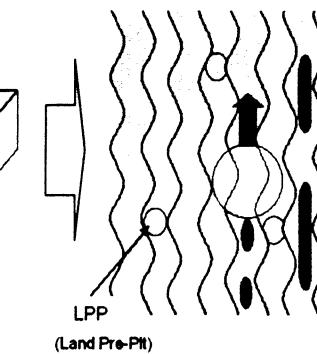
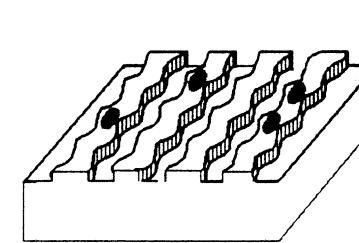
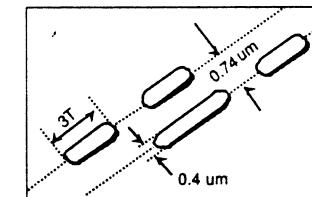
VWDC2(LCN102 PIN 35)

OPCTRGLIC301 PIN 151)

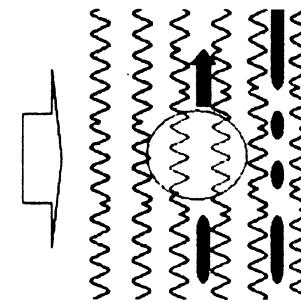
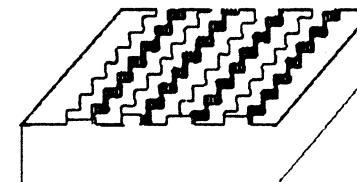
The difference of DVD-R/RW, DVD+R/RW discs and DVD-ROM

1. Recording Layer

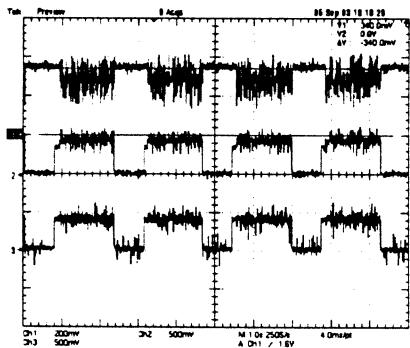
- DVD-ROM (Read Only Disc)



- DVD+R/RW Disc



35.Laser Power(Writing)_Processing



VRDC(LCN201 PIN 34)

VWDC(LCN201 PIN 36)

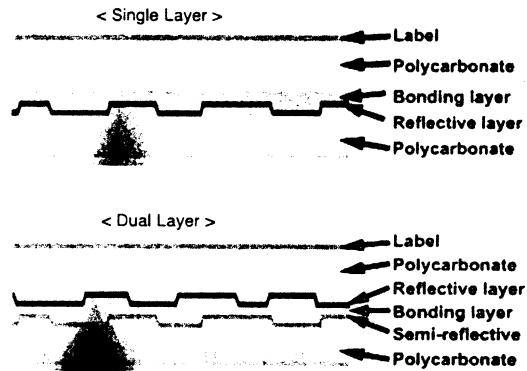
VWDC2(LCN201 PIN 35)

2. Disc Specification

	DVD-ROM		DVD-R	DVD-RW	DVD+R	DVD+RW
	Single-Layer	Dual-Layer				
Media Type	Read Only	Read Only	Dye	Phase change	Dye	Phase change
User data capacity	4.7GB	8.54GB	4.7GB	4.7GB	4.7GB	4.7GB
Wavelength	650nm	650nm	650nm	650nm	650nm	650nm
Reflectivity	45~85%	18~30nm	45~85%	18~30 %	45~85 %	18~30nm
Track pitch	0.74μm	0.74μm	0.74μm	0.74μm	0.74μm	0.74μm
Minimum pit length	0.4μm	0.4μm	0.4μm	0.4μm	0.4μm	0.4μm
Modulation	>0.6	>0.6	>0.6	>0.6	>0.6	>0.6
Channel bit-rate	26.16MHz	26.16MHz	26.16MHz	26.16MHz	26.16MHz	26.16MHz
Wobble Frequency	-	-	140KHz	140KHz	817.4KHz	817.4KHz
Addressing	26.16MHz	26.16MHz	Wobble & LPP	Wobble & LPP	Wobble(ADIP)	Wobble(ADIP)
Read Power (mW)					0.7 ± 0.1	0.7 ± 0.1
Write Power (mW)	-					
Jitter	<8%	<8%	<8%	<8%	<9%	<9%

3. Disc Materials

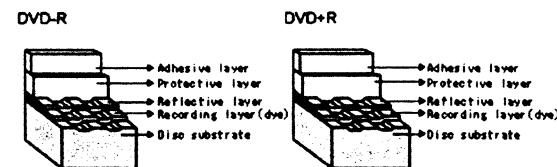
1) DVD-ROM



2) Recording format using organic dye material (DVD-R / DVD+R)

The format that records data through the creation of recorded marks by changing the organic dye material with a laser beam.

► Disc structure



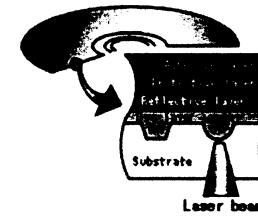
► Recording principles

[Recording]

Recording is done by changing the organic dye layer and the substrate with a laser. When a strong laser is applied to a disc, the temperature of the organic dye material goes up, the dye is decomposed and the substrate changes at the same time. At this time, a durable bit is created as is the case with a CD-ROM.

[Playback]

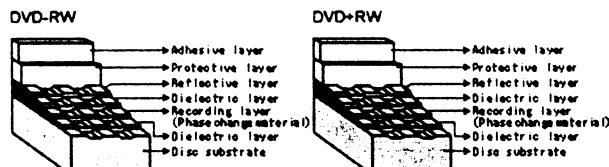
Signals are read with the differences of the reflection of a laser from pits.



3) Recording format using phase-change recording material (DVD-RW / DVD+RW)

• Data is recorded by changing the recording layer from the amorphous status to the crystalline status, and played back by reading the difference of the reflection coefficient.
Amorphous: Non-crystalline.

► Disc structure



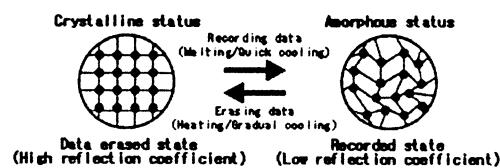
► Recording principles

[Recording]

When a high-power laser is applied to the recording material, it melts and then becomes amorphous with a low reflection coefficient when it quickly cools off. When a mid-power laser is applied to heat gradually the recording material and then gradually cools it off, it becomes crystal with a high reflection coefficient.

[Playback]

A low-power laser is used for playback. The amount of reflected light depends on the status (amorphous or crystalline) of the recording material. This is detected by an optical sensor.

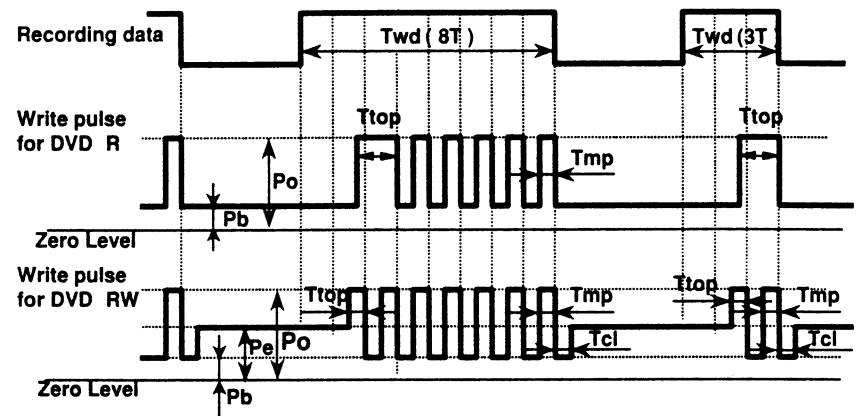


To make recordings, it is necessary to modulate the write pulse, which is called "Write Strategy".

There can be many types in Write Strategy. Typically Write Strategy for DVD ±R has NMP(Non Multi-Pulse) type and MP(Multi-Pulse) type. In NMP type each single mark is created by subsequent separated short pulses. In MP type each single mark is created by one continuous pulse.

Write Strategy for DVD ±RW has Type 1 and Type2. In Type 1 the mark with nT width is created by one top pulse and (n-2) multi-pulses. Thus mark 3T is made by one top pulse and one multi-pulse. In Type 2 the mark with nT width is created by one top pulse and (n-3) multi-pulses. Thus mark 3T is made by one top pulse only.

RL-02A uses MP type Write Strategy for DVD ±R and Type 1 for DVD ±RW as shown below.



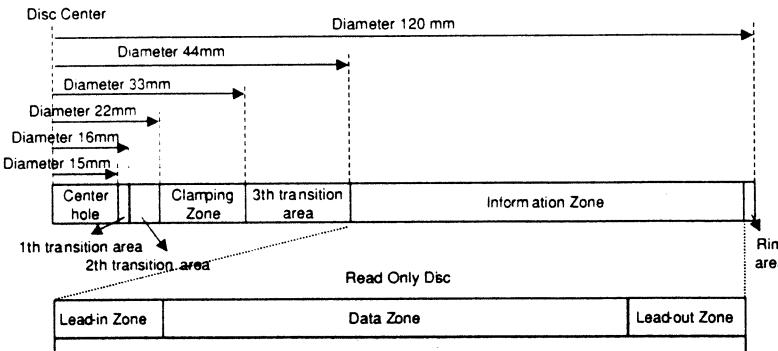
Po : Write Power (Peak Power)

Pe : Erase Power

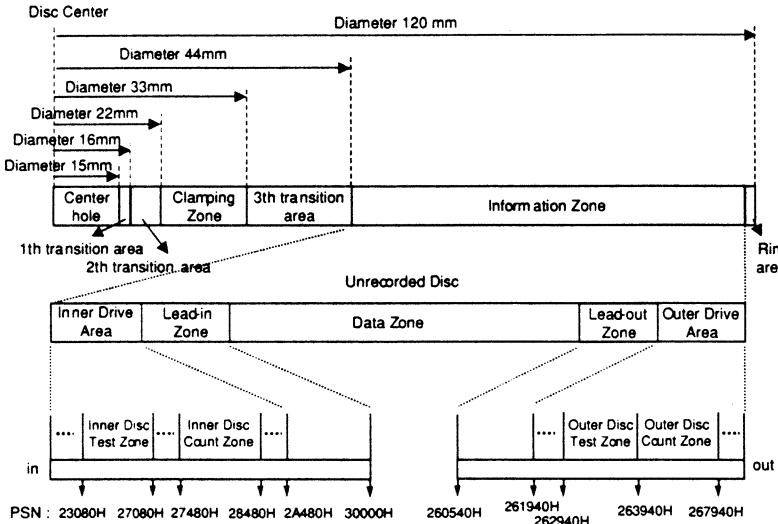
Pb : Bias Power

4. Organization of the Inner Drive Area, Outer Drive Area, Lead-in Zone and Lead-out Zone

1) Layout of DVD-RQM disc



2) Layout of DVD+R disc



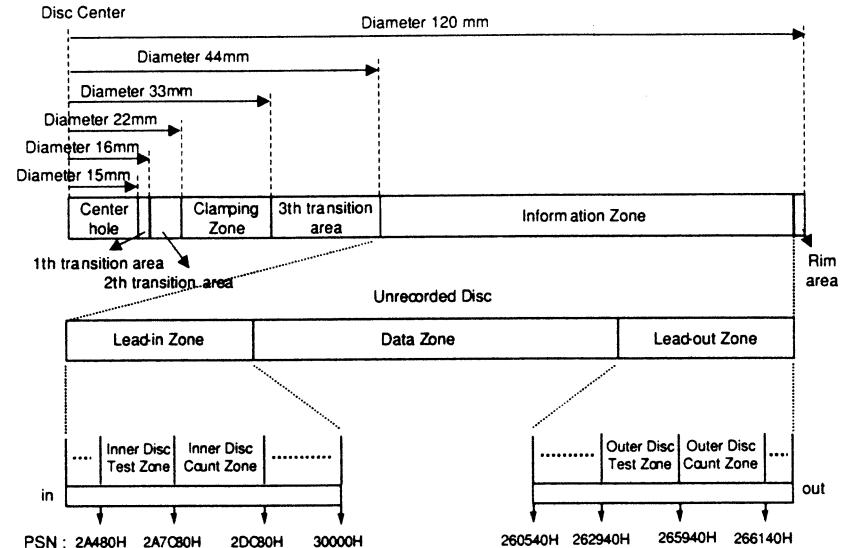
Inner Disc Test Zone : for performing OPC procedures.

Inner Disc Count Zone : For counting the number of OPC algorithm performed in IDT Zone.

Outer Disc Test Zone : for performing OPC procedures.

Outer Disc Count Zone : For counting the number of OPC algorithm performed in IDT Zone.

3) Layout of DVD+RW disc

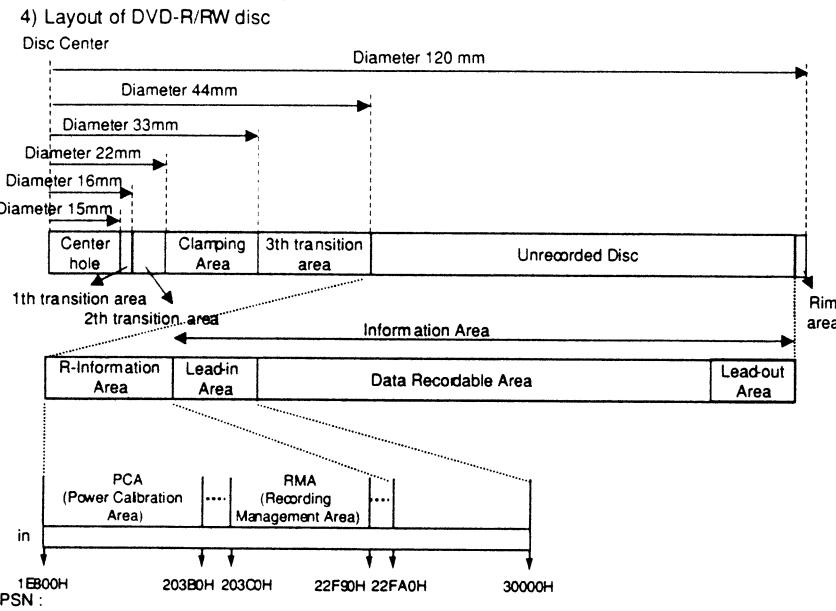


Inner Disc Test Zone : for performing OPC procedures.

Inner Disc Count Zone : For counting the number of OPC algorithm performed in IDT Zone.

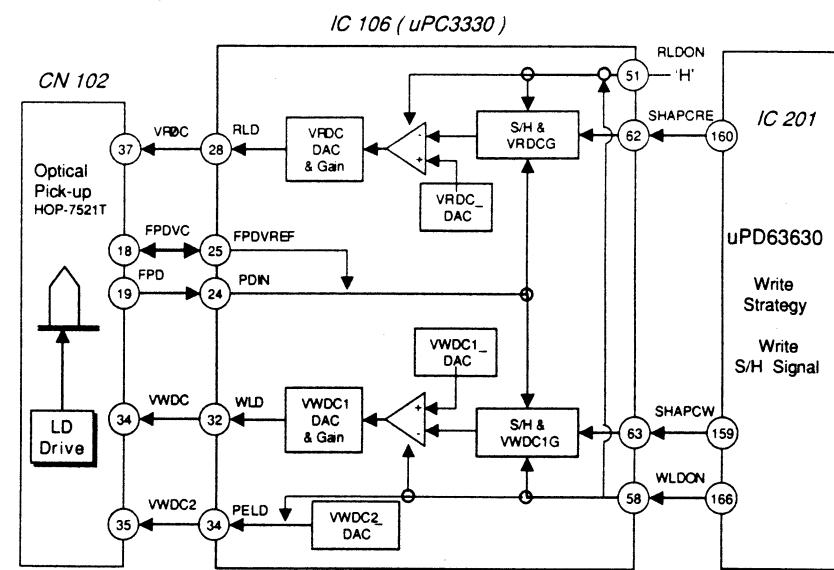
Outer Disc Test Zone : for performing OPC procedures.

Outer Disc Count Zone : For counting the number of OPC algorithm performed in IDT Zone.



5. ALPC(Automatic Laser Power Control) Circuit

1) Block Diagram



2) ALPC(Automatic Laser Power Control) Circuit Operation

ALPC function in CD-R/RW,DVD+R/RW analog front-end is for constant power level control purpose. Based on the accurate power sensor(FPD) in OPU, ALPC feedback loop maintains constant power level against laser diode's temperature variation.

There are two power control loops in uPC3330, which are used with different combination for different applications. Generally, the first ALPC loop is used for read-power control. The 2nd ALPC loop is used for write(erase) power control for CD-R/RW and DVD+R/RW disc.

Owing to the small signal level in read-power control mode, the first ALPC loop amplifies the FPD signal to enhance the accuracy of read power control. The built-in 10-bit DAC(VRDC_DAC) is used to set the read power level. Moreover, the 2nd ALPC loop is used for high power control. The built-in 10-bit DAC(VWDC1_DAC) is used to set the wanted power level.

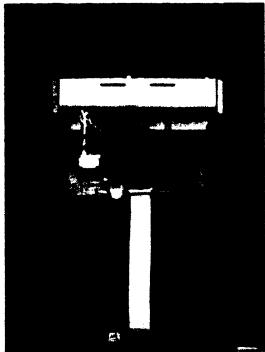
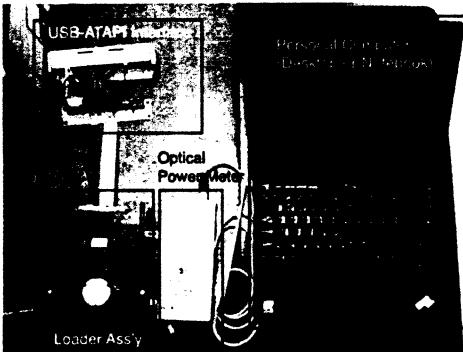
And the register VWDC1G is employed to adjust the gain of FPD signal. The following potentiometers(VRDC_DAC, VWDC1_DAC, and VWDC2_DAC) and amplifiers (VRDCG and VWDC1G) are used to set the wanted levels of the output pins RLD, WLD, and PELD.

How to use test tool

1. ALPC Measurement System Configuration

In order to measure and adjust DVD RW optical power. The following measurement equipments are needed.

- ◆ Compulsory equipment
 - (1) Optical Power meter & Sensor (ADVANTEST, TQ8210/Q82017A or equivalent)
 - (2) Personal Computer (Pentium 3, 500MHz Above, RAM:64M Above, Win98 Above)
 - (3) Adjustment Program (Dragon or ALPC) for SVC, ALPC Program recommended
- ◆ FI optional equipment
 - (1) USB-ATAPI Interface (needed when using USB Port from the laptop computer without ATAPI interface or a desktop computer)
 - (2) Connector-ATAPI Interface Board(Part No:6881R-7677A) (needed when ATAPI is not attached to Loader)



2. ALPC Program Configuration

ALPC Program consists of total 4 files.

ALPC.exe
LgBada.dll
modelmn.txt
WNASPI32.DLL

These 4 files should be located in one directory.
ALPC.exe is a program execution file.
modelmn.txt is a configuration file.

Determine how to connect

The following contents are included when you open "modelmn.txt" file.

The following contents are included when you open LGE connect=0

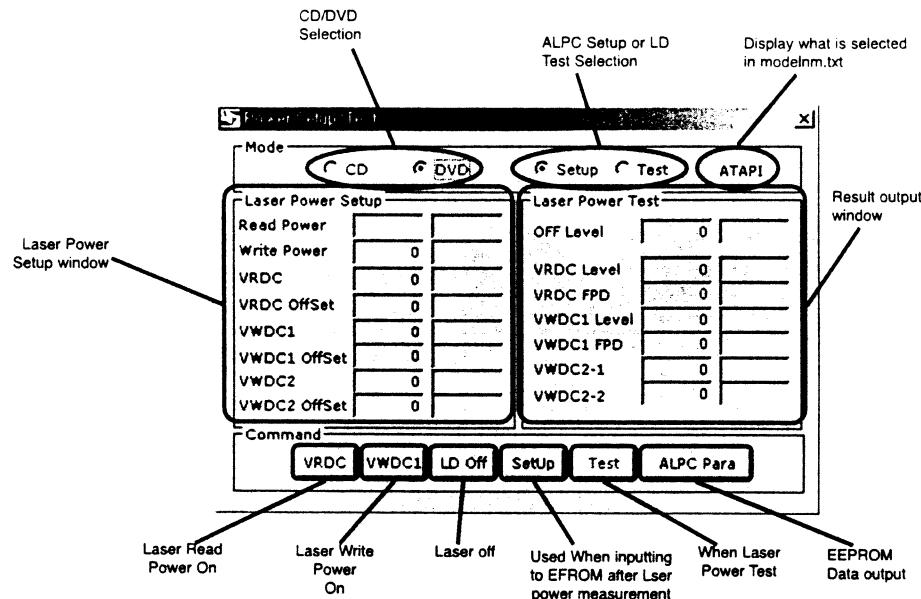
connect=0 is the item which you can determine whether you use Serial or ATAPI.

0 : ATAPI
1 : Serial

Thus, select connect=0 to use ATAPI, or select connect=1 to use Serial, then save the file.
(For SVC, ATAPI setting is recommended.)

3. Running ALPC Program

When running ALPC.exe file, the following screen appears.



4 LD Test

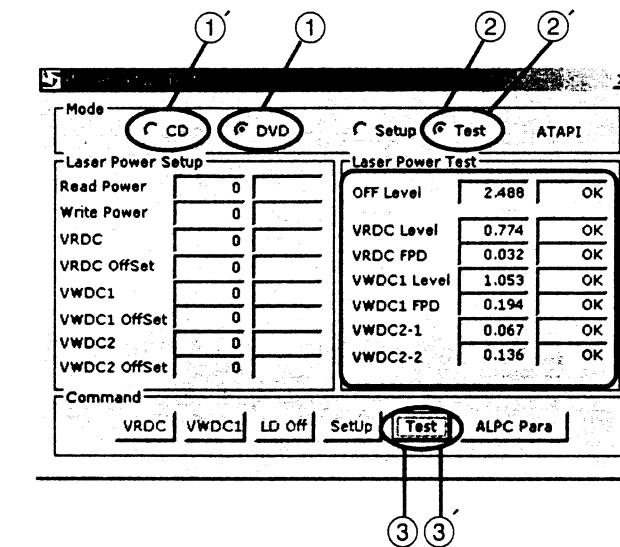
* Test DVD LD

- ① Select DVD mode
- ② Select Test mode
- ③ Click

* Test DVD CD

- ① Select CD mode
- ② Select Test mode
- ③ Click

Section	Off	VRDC	VR_FPD	VWDC1	VW_FPD	VW2-1	VW2-2
CD	2.4±0.08	0.53±0.22	0.02±0.01				
DVD	2.4±0.08	0.7±0.2	0.04±0.01	0.43±0.05	0.2±0.02	0.08±0.02	0.2±0.03



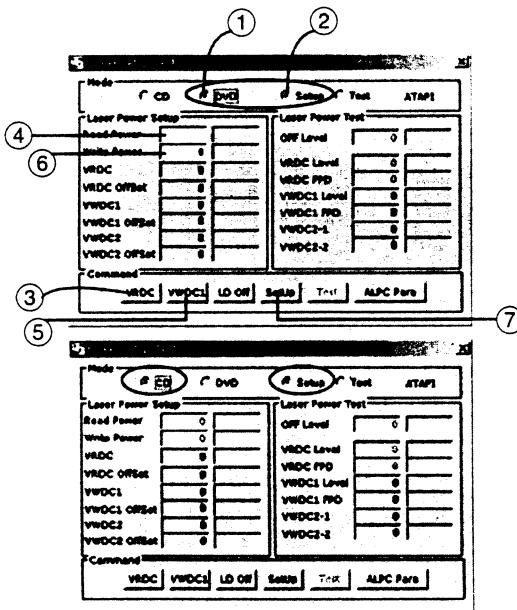
Specification can be changed according to pick-up type, circuit, program, and chipset.
If specification is changed, program can be sent by supervisor.
Specification above is temporary reference.

5. Optical Power Setting

When replacing Travers ass'y including Pick-up or Loader PCB, Optical Power Setting should be performed for Pick-up and Loading PCB's matching.

- 1 DVD LD optocal Power Setting
 - Select DVD and Setup mode
 - Push Read. (Read Power On. Strong Red light can be seen from pick up optical lens.)
 - Measure optical power.
 - Write measurement value in Read Power.
 - Push Write. (Write power On.) (Caution) Light is very strong. Never look at the light directly.
 - Measure optical power.
 - Write measurement value in Read Power and push LD off Write.
 - Push Write. (Measurement value is inputted to EEPROM)

- 2 DVD LD optocal Power Setting
 - Select CD and Setup mode
 - Push Read. (Read Power On. Weak Red light can be seen from pick up optical lens.)
 - Measure optical power.
 - Write measurement value in Read Power.
 - Push Write. (Write power On. Weak Red light can be seen.)
 - Measure optical power and push LD off Write.
 - Write measurement value in Read Power.
 - Push Write. (Measurement value is inputted to EEPROM)



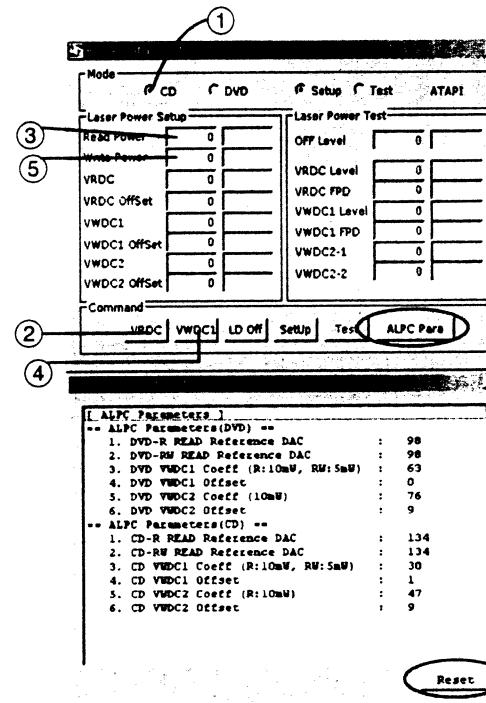
6. Optical Power Setting Parameter Check

Use when defective happens even though LD test result is normal.

When defective can be found but power test result is OK. You need to check current settings whether they are proper or not. In this case, Pressing ALPC will display ALPC Parameter Info window and show current optical power settings recorded in EEPROM(IC302).

Write down these settings on the paper, perform optical power setting and press ALPC again, then new optical power settings will appear. Compare these two parameters. If there is a big difference, optical power setting may have been wrong at first or pick-up optical output may have been changed. If pick-up is normal, problem can be solved by resetting optical power without replacing pick-up.

In order to remove previous ALPC Parameter from ALPC Parameter Info, press Reset at the bottom of ALPC Parameter Info window.



[ALPC Parameters]	
-- ALPC Parameters(DVD) --	
1. DVD-R READ Reference DAC	: 98
2. DVD-RW READ Reference DAC	: 98
3. DVD VWDC1 Coeff (R:10mW, RW:5mW)	: 63
4. DVD VWDC1 Offset	: 0
5. DVD VWDC2 Coeff (10mW)	: 76
6. DVD VWDC2 Offset	: 9
-- ALPC Parameters(CD) --	
1. CD-R READ Reference DAC	: 134
2. CD-RW READ Reference DAC	: 134
3. CD VWDC1 Coeff (R:10mW, RW:5mW)	: 30
4. CD VWDC1 Offset	: 1
5. CD VWDC2 Coeff (R:10mW)	: 47
6. CD VWDC2 Offset	: 9

[VALID ALPC Parameters]

<CD>

- 1) CD-R READ Reference DAC : 70 ~ 100
- 2) CD-RW READ Reference DAC : 70 ~ 100

<DVD>

- | | |
|------------------------------|------------|
| 1) DVD-R READ Reference DAC | : 42 ~ 107 |
| 2) DVD-RW READ Reference DAC | : 42 ~ 107 |
| 3) VWDC1 | : 35 ~ 65 |
| 4) VWDC1 Offset | : 0 ~ 6 |
| 5) VWDC2 | : 20 ~ 43 |
| 6) VWDC2 Offset | : 0 ~ 10 |

Appendix. How to measure optical power

Optical power measurement is measuring actual optical power coming out from an object lens with LD turned on. Thus, in order to measure optical power, LD should be turned on and environment need to be dark enough.

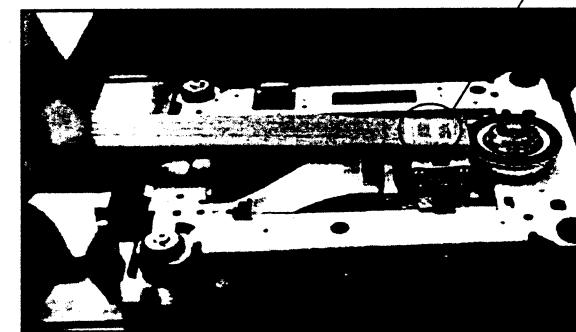
If necessary, Cover the top side of the sensor with black paper or hand when measuring.

Generally, fluorescent light is about 50 μ W, sun light is about 100 mW. so, If this is ignored, optical power setting may not be set correctly.

Optical power measurement procedure

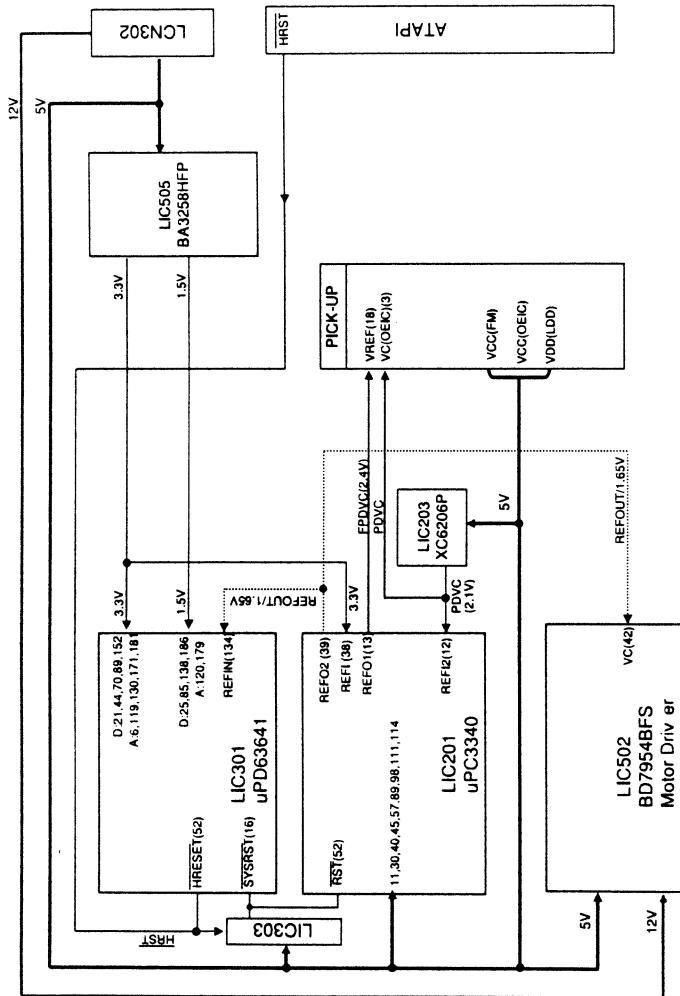
1. Adjust optical power meter's λ (wave length) to DVD. (Generally 660 nm)
2. Turn DVD LD on.
3. Place sensor less than 3mm apart from pick-up object lens, perpendicular to lens.
Adjust position so that the center of object lens match to  mark on the sensor.
4. Read monitor's value. (Read Maximum value as moving position slightly)
(Check working unit. Unit should be mW. When LD is dead, μ W or nW unit may not be read correctly.)
5. Multiply monitor's value by 100, round off to the nearest integer, then write constant part.
6. Adjust optical power meter's λ (wave length) to CD. (Generally 780 nm)
7. Turn CD LD on.
8. Repeat step 3~5 above.

Display Part

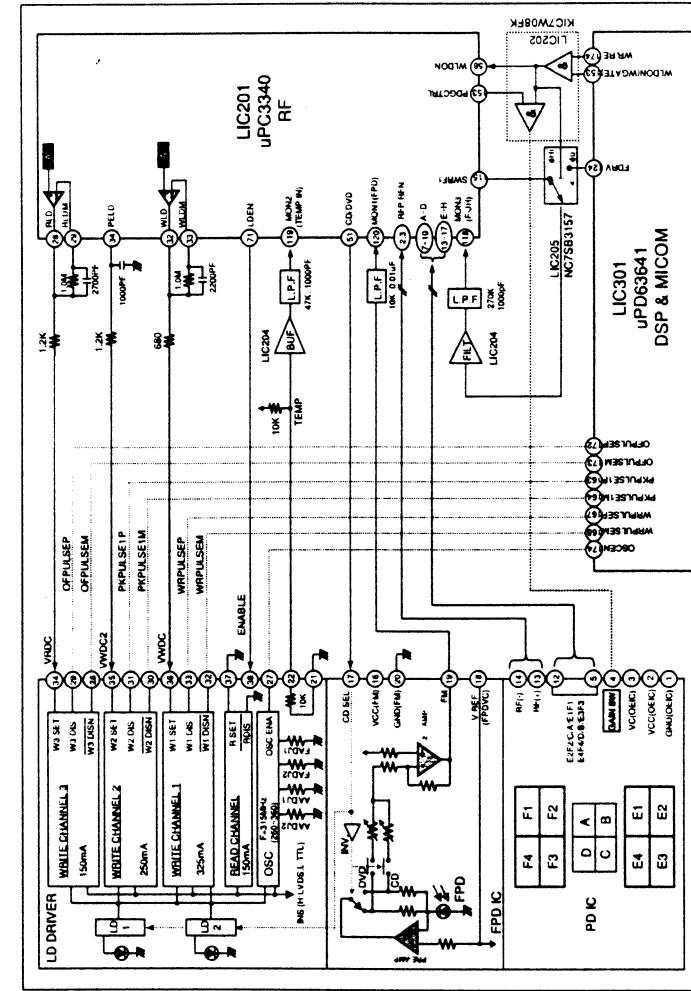


BLOCK DIAGRAMS

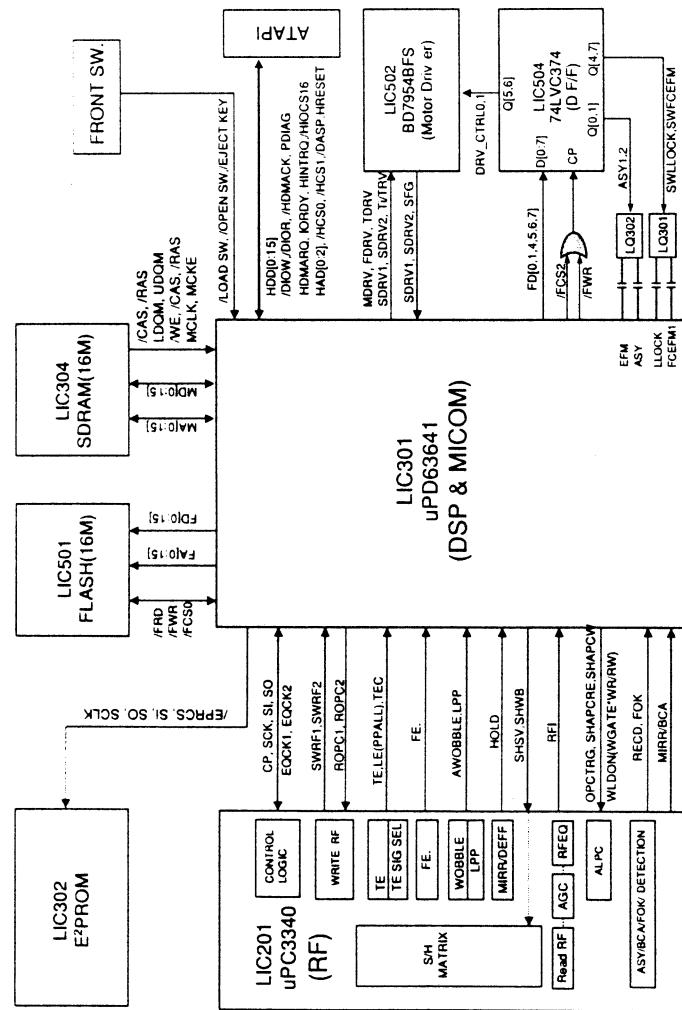
1. OVERALL BLOCK DIAGRAM



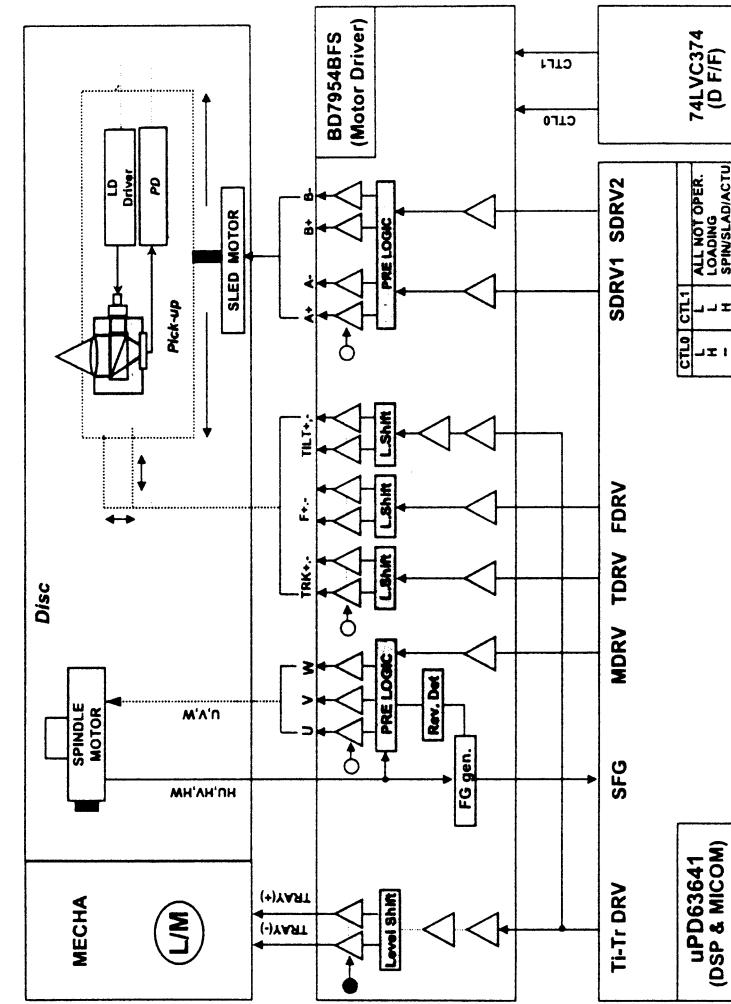
2. DSP BLOCK DIAGRAM



3. μ -COM BLOCK DIAGRAM

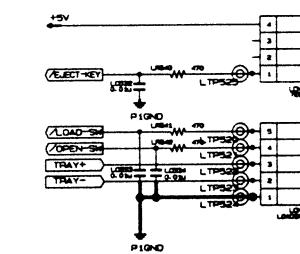
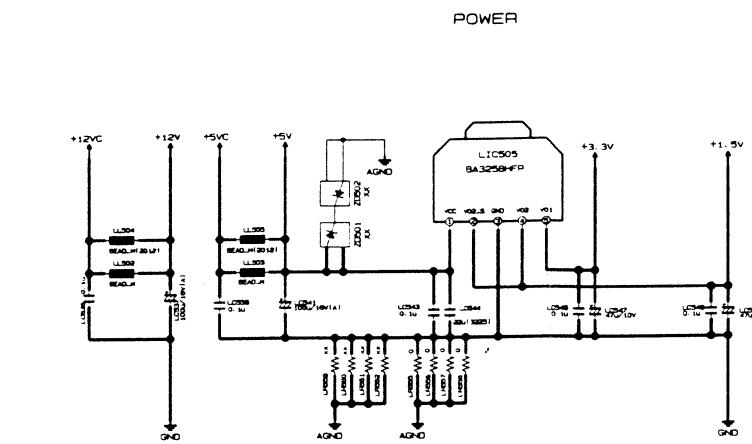
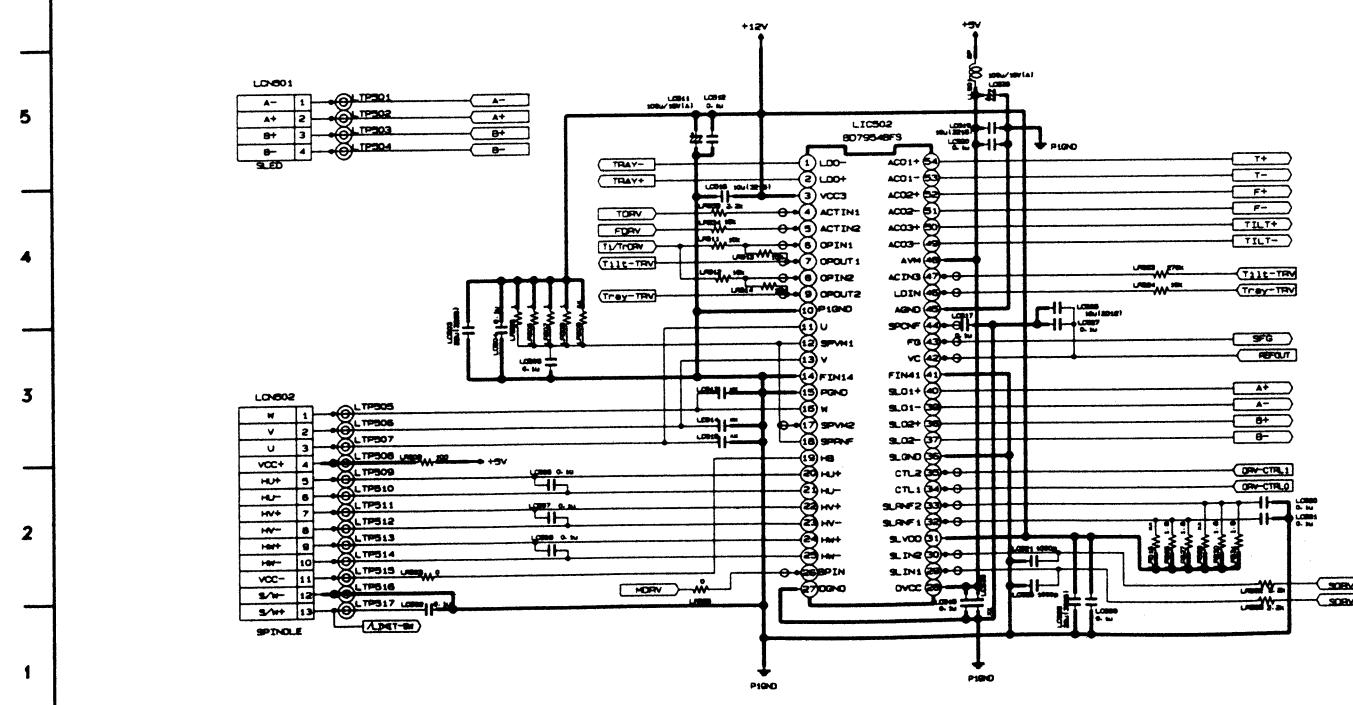
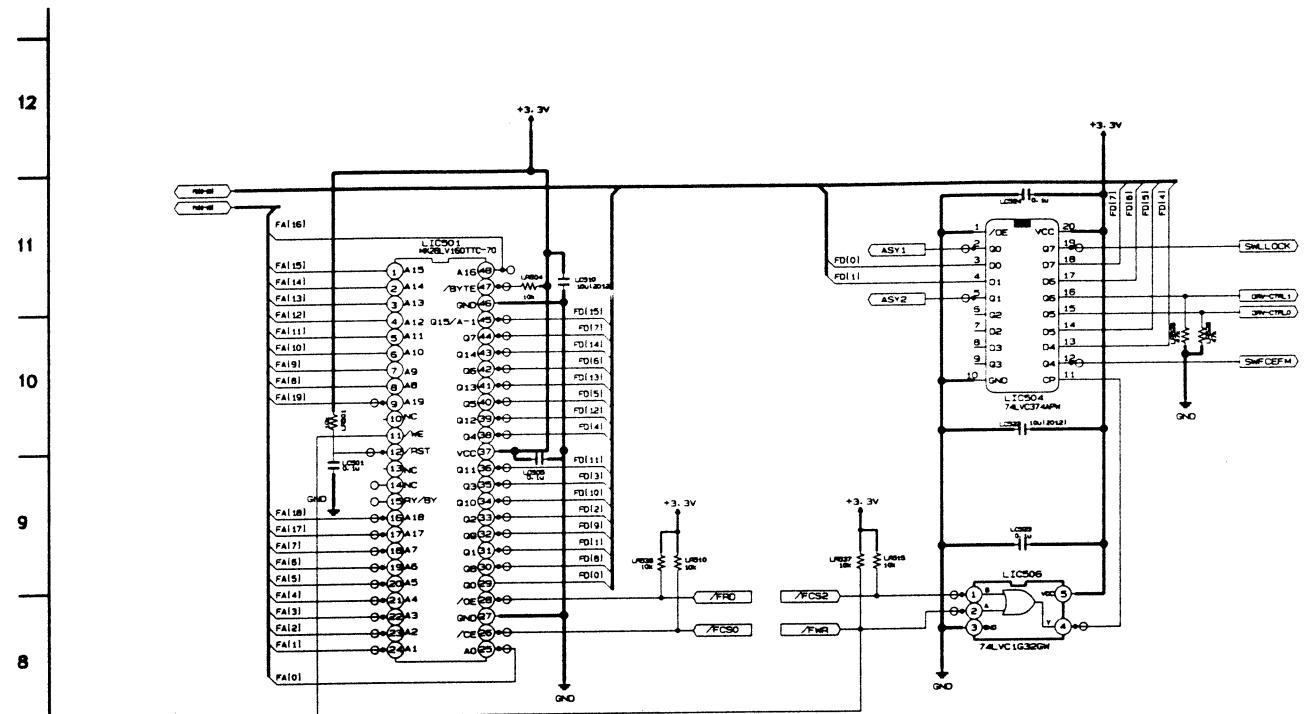


4. RF BLOCK DIAGRAM

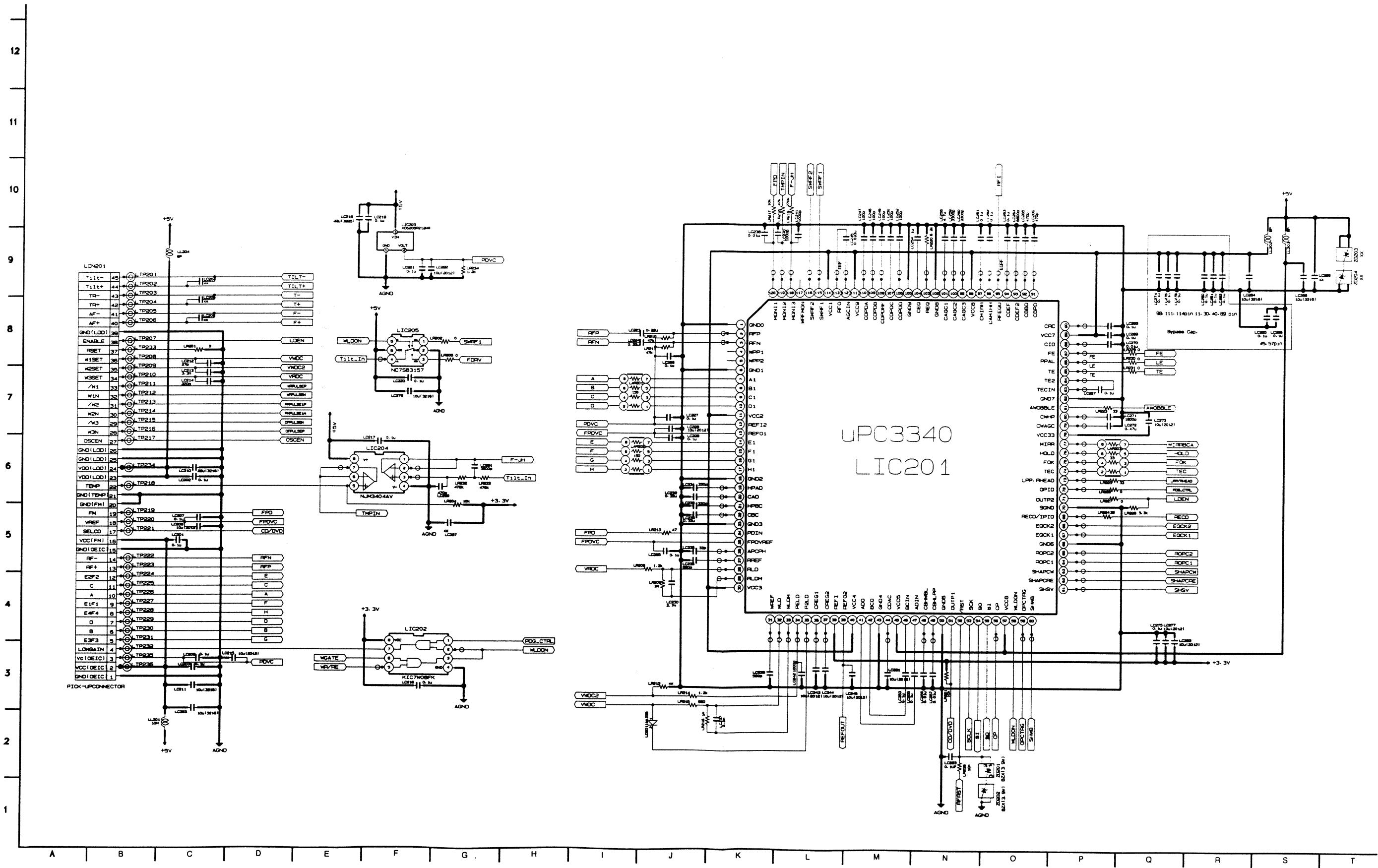


CIRCUIT DIAGRAMS

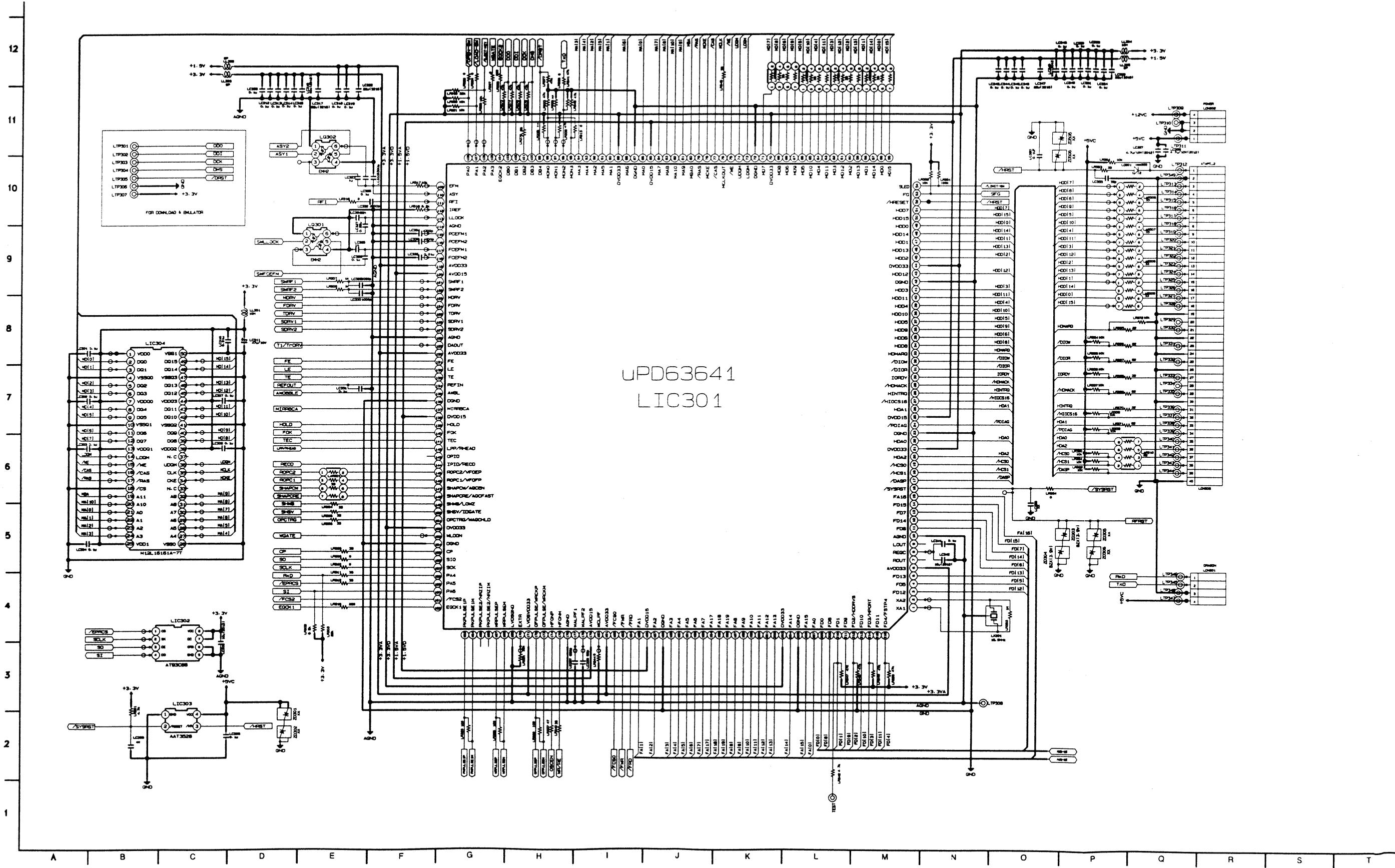
1. RF CIRCUIT DIAGRAM



2. DSP CIRCUIT DIAGRAM

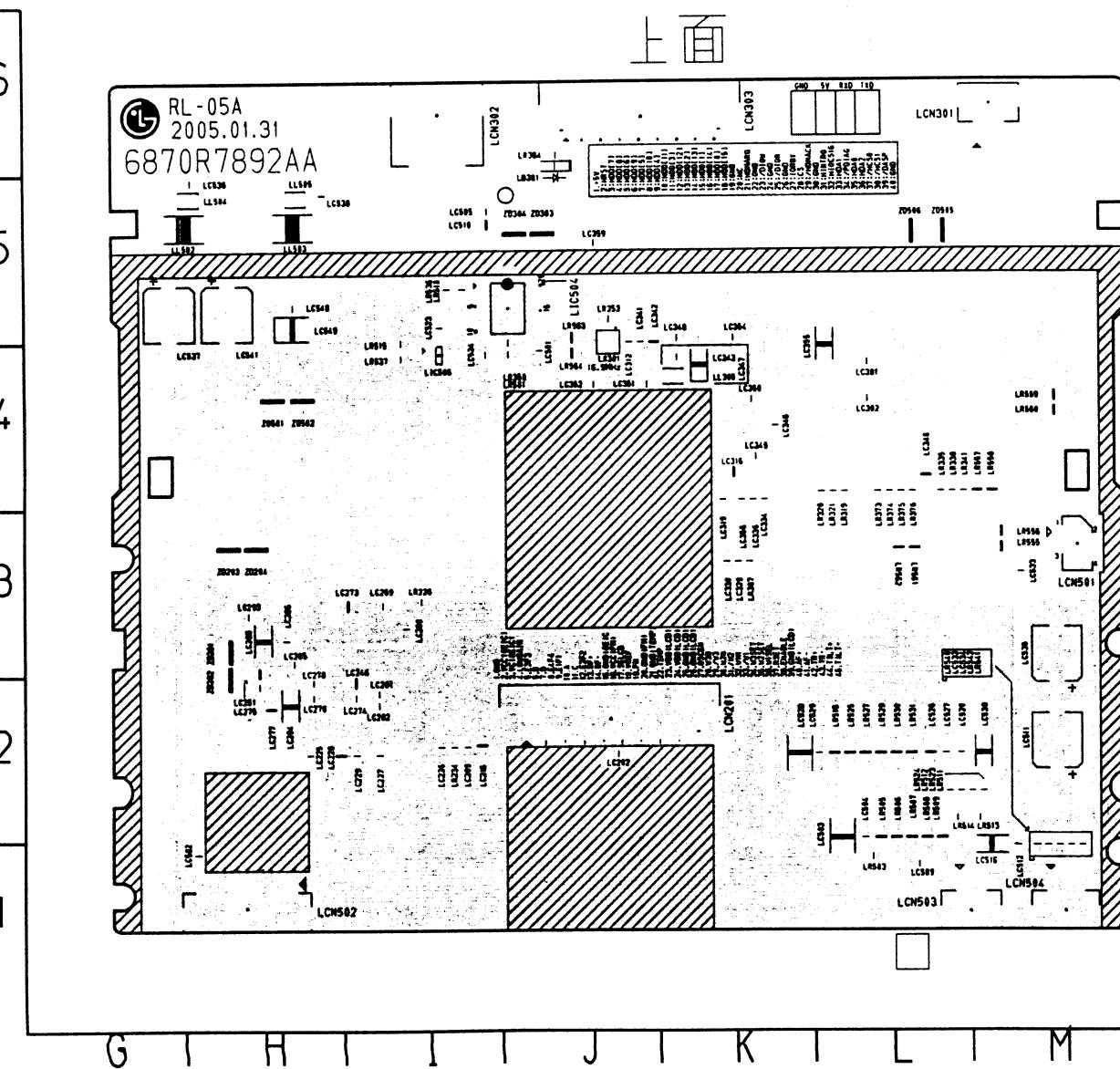


3. μ -COM CIRCUIT DIAGRAM



PRINTED CIRCUIT DIAGRAMS

1. MAIN P.C.BOARD



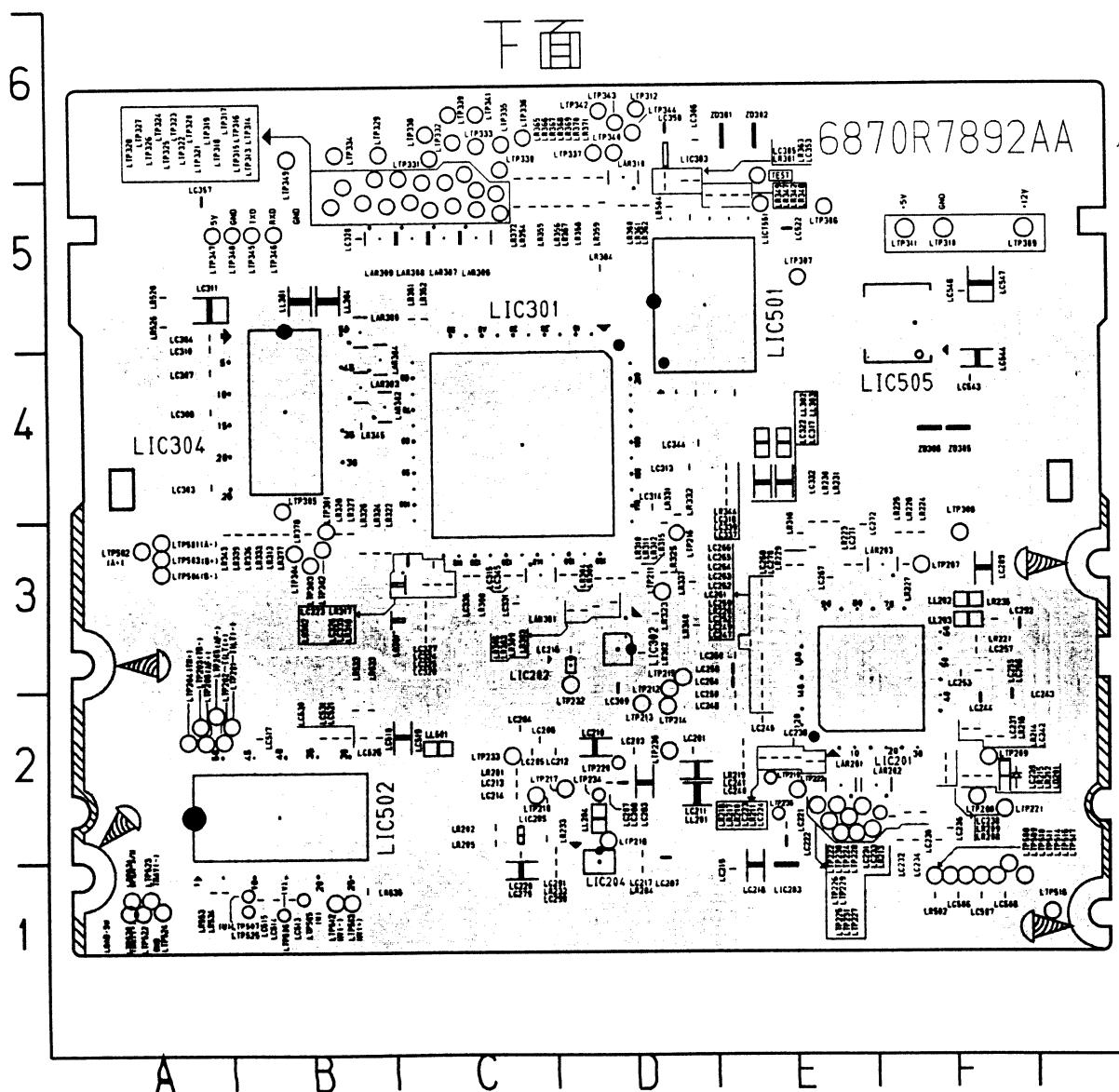
LOCATION GUIDE

LC202 J2	LC343 K4	LC541 H5	LIC T318L4	LIC T559L2	LR513 M2
LC209 J2	LC346 K4	LC548 H5	LIC T319L4	LIC T561L2	LR514 L2
LC215 J2	LC347 K4	LC549 H5	LIC T321L4	LIC T563L2	LR515 L4
LC225 H2	LC348 K5	LCN201 J2	LIC T324L4	LIC T56614	LR516 L2
LC226 H2	LC349 K4	LCN301 M6	LIC T325L4	LIC T56714	LR523 M2
LC227 H2	LC350 K4	LCN302 I6	LIC T328L4	LIC T56805	LR524 L2
LC228 H2	LC351 J4	LCN303 J6	LIC T329L4	LL305 K4	LR525 L2
LC229 H2	LC352 J4	LCN501 M3	LIC T330K4	LL502 H5	LR527 L2
LC246 H2	LC354 K5	LCN502 H1	LIC T331K4	LL503 H5	LR529 L2
LC251 H3	LC355 L4	LCN503 L1	LIC T332L4	LL504 H5	LR530 L2
LC269 I3	LC356 K4	LC3504 M1	LIC T333L4	LL505 H5	LR531 L2
LC277 I3	LC359 J5	LD301 J6	LIC T335K4	LR226 I3	LR536 I5
LC278 I2	LC360 J4	LIC504 J4	LIC T336L4	LR234 I2	LR537 I4
LC279 H2	LC502 H1	LIC506 I4	LIC T337K1	LR307 K3	LR540 M1
LC276 H2	LC503 L2	LIC T202J3	LIC T339K2	LR319 L4	LR541 M1
LC277 H2	LC504 L2	LIC T203I2	LIC T353K3	LR320 L4	LR542 M1
LC278 H2	LC505 I5	LIC T211 I2	LIC T354K3	LR321 L4	LR555 M3
LC280 I3	LC509 L1	LIC T239H3	LIC T361K4	LR335 L4	LR556 M3
LC281 I2	LC510 I5	LIC T247I3	LIC T362K3	LR338 L4	LR557 M4
LC282 I2	LC511 M2	LIC T265I3	LIC T364K3	LR341 L4	LR558 M4
LC284 H2	LC512 M1	LIC T277H3	LIC T370I4	LR350 J4	LR559 M4
LC285 H3	LC516 M1	LIC T301I4	LIC T374J5	LR353 J5	LR560 M4
LC286 H3	LC518 M1	LIC T302L5	LIC T378J5	LR364 J6	LR561 L3
LC287 H3	LC520 I2	LIC T303L5	LIC T383J5	LR373 L4	LR562 L3
LC293 H3	LC524 I4	LIC T304L4	LIC T501 J4	LR374 L4	LR563 L3
LC301 L4	LC526 L2	LIC T305L4	LIC T502I4	LR375 L4	LR564 J4
LC302 L4	LC527 L2	LIC T306L4	LIC T505L1	LR376 L4	LX301 J4
LC312 J4	LC528 K2	LIC T307L4	LIC T516L2	LR501 J4	Z0201 H3
LC316 K4	LC529 L2	LIC T308L4	LIC T517L2	LR503 L1	Z0202 H2
LC319 K4	LC532 M1	LIC T309L4	LIC T526J4	LR505 L2	Z0203 H3
LC329 K3	LC533 M3	LIC T310L4	LIC T539J5	LR506 L2	Z0204 H3
LC340 K3	LC534 M1	LIC T311K4	LIC T541J5	LR507 L2	Z0303 J5
LC332 K4	LC535 M3	LIC T312L4	LIC T542J5	LR508 L2	Z0304 J5
LC335 K4	LC536 H5	LIC T313L4	LIC T545J5	LR509 L2	Z0501 H4
LC340 L4	LC537 G5	LIC T314L4	LIC T554I5	LR510 I5	Z0502 H4
LC341 J4	LC538 H5	LIC T315L4	LIC T555I5	LR511 M2	Z0505 L5
LC342 J4	LC539 M2	LIC T316L4	LIC T558M2	LR512 L2	Z0506 L5

LOCATION GUIDE

EGR E3	LIC 235 F2	LIC 292 F3	LIC 513 B2	LIC 7220E2	LIC 377D4	LIC 3764G4	LIC 220 D3	LIC 339 B3	LIC 552 M4	LIC 306 E4	LIC 346 B5
FE E3	LIC 236 F2	LIC 293 A4	LIC 519 C2	LIC 7220E3	LIC 377D5	LIC 3764G5	LIC 221 D3	LIC 340 B3	LIC 553 M4	LIC 307 E4	LIC 348 B5
LA230 E2	LIC 237 F2	LIC 294 A4	LIC 520 C2	LIC 7220E4	LIC 377D6	LIC 3764G6	LIC 222 D3	LIC 341 B3	LIC 554 M4	LIC 308 E4	LIC 349 B5
LA231 F3	LIC 238 F3	LIC 295 D6	LIC 521 E5	LIC 7220F2	LIC 377D7	LIC 3764G7	LIC 223 D3	LIC 342 B3	LIC 555 M4	LIC 309 E4	LIC 350 B5
LA230 J3	C240	E3	LIC 537 A4	LIC 536 B2	LIC 7220F3	LIC 377D8	F3	LIC 344 E2	LIC 557 M4	LIC 310 E4	LIC 351 B5
LA230 B4	LIC 241	E3	LIC 538 A4	LIC 537 B2	LIC 7220F4	LIC 377D9	F3	LIC 345 E2	LIC 558 M4	LIC 311 E4	LIC 352 B5
LA230 D4	LIC 242	E3	LIC 539 A4	LIC 538 B2	LIC 7220F5	LIC 377D10	F3	LIC 346 E2	LIC 559 M4	LIC 312 E4	LIC 353 B5
LA230 S5	LIC 243	E3	LIC 540 A4	LIC 539 B2	LIC 7220F6	LIC 377D11	F3	LIC 347 E2	LIC 560 M4	LIC 313 E4	LIC 354 B5
LA230 T5	LIC 244	E3	LIC 541 A4	LIC 540 B2	LIC 7220F7	LIC 377D12	F3	LIC 348 E2	LIC 561 M4	LIC 314 E4	LIC 355 B5
LA230 V5	LIC 245	E3	LIC 542 A4	LIC 541 B2	LIC 7220F8	LIC 377D13	F3	LIC 349 E2	LIC 562 M4	LIC 315 E4	LIC 356 B5
LA230 W5	LIC 246	E3	LIC 543 A4	LIC 542 B2	LIC 7220F9	LIC 377D14	F3	LIC 350 E2	LIC 563 M4	LIC 316 E4	LIC 357 B5
LA230 X5	LIC 247	E3	LIC 544 A4	LIC 543 B2	LIC 7220F10	LIC 377D15	F3	LIC 351 E2	LIC 564 M4	LIC 317 E4	LIC 358 B5
LA230 Y5	LIC 248	E3	LIC 545 A4	LIC 544 B2	LIC 7220F11	LIC 377D16	F3	LIC 352 E2	LIC 565 M4	LIC 318 E4	LIC 359 B5
LA230 Z5	LIC 249	E3	LIC 546 A4	LIC 545 B2	LIC 7220F12	LIC 377D17	F3	LIC 353 E2	LIC 566 M4	LIC 319 E4	LIC 360 B5
LA230 B6	LIC 250	E3	LIC 547 A4	LIC 546 B2	LIC 7220F13	LIC 377D18	F3	LIC 354 E2	LIC 567 M4	LIC 320 E4	LIC 361 B5
LA231 D6	LIC 251	E3	LIC 548 A4	LIC 547 B2	LIC 7220F14	LIC 377D19	F3	LIC 355 E2	LIC 568 M4	LIC 321 E4	LIC 362 B5
LA231 F6	LIC 252	E3	LIC 549 A4	LIC 548 B2	LIC 7220F15	LIC 377D20	F3	LIC 356 E2	LIC 569 M4	LIC 322 E4	LIC 363 B5
LA231 H6	LIC 253	E3	LIC 550 A4	LIC 549 B2	LIC 7220F16	LIC 377D21	F3	LIC 357 E2	LIC 570 M4	LIC 323 E4	LIC 364 B5
LA231 K6	LIC 254	E3	LIC 551 A4	LIC 550 B2	LIC 7220F17	LIC 377D22	F3	LIC 358 E2	LIC 571 M4	LIC 324 E4	LIC 365 B5
LA231 M6	LIC 255	E3	LIC 552 A4	LIC 551 B2	LIC 7220F18	LIC 377D23	F3	LIC 359 E2	LIC 572 M4	LIC 325 E4	LIC 366 B5
LA231 O6	LIC 256	E3	LIC 553 A4	LIC 552 B2	LIC 7220F19	LIC 377D24	F3	LIC 360 E2	LIC 573 M4	LIC 326 E4	LIC 367 B5
LA231 Q6	LIC 257	E3	LIC 554 A4	LIC 553 B2	LIC 7220F20	LIC 377D25	F3	LIC 361 E2	LIC 574 M4	LIC 327 E4	LIC 368 B5
LA231 S6	LIC 258	E3	LIC 555 A4	LIC 554 B2	LIC 7220F21	LIC 377D26	F3	LIC 362 E2	LIC 575 M4	LIC 328 E4	LIC 369 B5
LA231 U6	LIC 259	E3	LIC 556 A4	LIC 555 B2	LIC 7220F22	LIC 377D27	F3	LIC 363 E2	LIC 576 M4	LIC 329 E4	LIC 370 B5
LA231 V6	LIC 260	E3	LIC 557 A4	LIC 556 B2	LIC 7220F23	LIC 377D28	F3	LIC 364 E2	LIC 577 M4	LIC 330 E4	LIC 371 B5
LA231 W6	LIC 261	E3	LIC 558 A4	LIC 557 B2	LIC 7220F24	LIC 377D29	F3	LIC 365 E2	LIC 578 M4	LIC 331 E4	LIC 372 B5
LA231 X6	LIC 262	E3	LIC 559 A4	LIC 558 B2	LIC 7220F25	LIC 377D30	F3	LIC 366 E2	LIC 579 M4	LIC 332 E4	LIC 373 B5
LA231 Y6	LIC 263	E3	LIC 560 A4	LIC 559 B2	LIC 7220F26	LIC 377D31	F3	LIC 367 E2	LIC 580 M4	LIC 333 E4	LIC 374 B5
LA231 Z6	LIC 264	E3	LIC 561 A4	LIC 560 B2	LIC 7220F27	LIC 377D32	F3	LIC 368 E2	LIC 581 M4	LIC 334 E4	LIC 375 B5
LA231 B7	LIC 265	E3	LIC 562 A4	LIC 561 B2	LIC 7220F28	LIC 377D33	F3	LIC 369 E2	LIC 582 M4	LIC 335 E4	LIC 376 B5
LA231 D7	LIC 266	E3	LIC 563 A4	LIC 562 B2	LIC 7220F29	LIC 377D34	F3	LIC 370 E2	LIC 583 M4	LIC 336 E4	LIC 377 B5
LA231 F7	LIC 267	E3	LIC 564 A4	LIC 563 B2	LIC 7220F30	LIC 377D35	F3	LIC 371 E2	LIC 584 M4	LIC 337 E4	LIC 378 B5
LA231 H7	LIC 268	E3	LIC 565 A4	LIC 564 B2	LIC 7220F31	LIC 377D36	F3	LIC 372 E2	LIC 585 M4	LIC 338 E4	LIC 379 B5
LA231 K7	LIC 269	E3	LIC 566 A4	LIC 565 B2	LIC 7220F32	LIC 377D37	F3	LIC 373 E2	LIC 586 M4	LIC 339 E4	LIC 380 B5
LA231 M7	LIC 270	E3	LIC 567 A4	LIC 566 B2	LIC 7220F33	LIC 377D38	F3	LIC 374 E2	LIC 587 M4	LIC 340 E4	LIC 381 B5
LA231 O7	LIC 271	E3	LIC 568 A4	LIC 567 B2	LIC 7220F34	LIC 377D39	F3	LIC 375 E2	LIC 588 M4	LIC 341 E4	LIC 382 B5
LA231 Q7	LIC 272	E3	LIC 569 A4	LIC 568 B2	LIC 7220F35	LIC 377D40	F3	LIC 376 E2	LIC 589 M4	LIC 342 E4	LIC 383 B5
LA231 U7	LIC 273	E3	LIC 570 A4	LIC 569 B2	LIC 7220F36	LIC 377D41	F3	LIC 377 E2	LIC 590 M4	LIC 343 E4	LIC 384 B5
LA231 V7	LIC 274	E3	LIC 571 A4	LIC 570 B2	LIC 7220F37	LIC 377D42	F3	LIC 378 E2	LIC 591 M4	LIC 344 E4	LIC 385 B5
LA231 W7	LIC 275	E3	LIC 572 A4	LIC 571 B2	LIC 7220F38	LIC 377D43	F3	LIC 379 E2	LIC 592 M4	LIC 345 E4	LIC 386 B5
LA231 X7	LIC 276	E3	LIC 573 A4	LIC 572 B2	LIC 7220F39	LIC 377D44	F3	LIC 380 E2	LIC 593 M4	LIC 346 E4	LIC 387 B5
LA231 Y7	LIC 277	E3	LIC 574 A4	LIC 573 B2	LIC 7220F40	LIC 377D45	F3	LIC 381 E2	LIC 594 M4	LIC 347 E4	LIC 388 B5
LA231 Z7	LIC 278	E3	LIC 575 A4	LIC 574 B2	LIC 7220F41	LIC 377D46	F3	LIC 382 E2	LIC 595 M4	LIC 348 E4	LIC 389 B5
LA231 B8	LIC 279	E3	LIC 576 A4	LIC 575 B2	LIC 7220F42	LIC 377D47	F3	LIC 383 E2	LIC 596 M4	LIC 349 E4	LIC 390 B5
LA231 D8	LIC 280	E3	LIC 577 A4	LIC 576 B2	LIC 7220F43	LIC 377D48	F3	LIC 384 E2	LIC 597 M4	LIC 350 E4	LIC 391 B5
LA231 F8	LIC 281	E3	LIC 578 A4	LIC 577 B2	LIC 7220F44	LIC 377D49	F3	LIC 385 E2	LIC 598 M4	LIC 351 E4	LIC 392 B5
LA231 H8	LIC 282	E3	LIC 579 A4	LIC 578 B2	LIC 7220F45	LIC 377D50	F3	LIC 386 E2	LIC 599 M4	LIC 352 E4	LIC 393 B5
LA231 K8	LIC 283	E3	LIC 580 A4	LIC 579 B2	LIC 7220F46	LIC 377D51	F3	LIC 387 E2	LIC 600 M4	LIC 353 E4	LIC 394 B5
LA231 M8	LIC 284	E3	LIC 581 A4	LIC 580 B2	LIC 7220F47	LIC 377D52	F3	LIC 388 E2	LIC 601 M4	LIC 354 E4	LIC 395 B5
LA231 O8	LIC 285	E3	LIC 582 A4	LIC 581 B2	LIC 7220F48	LIC 377D53	F3	LIC 389 E2	LIC 602 M4	LIC 355 E4	LIC 396 B5
LA231 Q8	LIC 286	E3	LIC 583 A4	LIC 582 B2	LIC 7220F49	LIC 377D54	F3	LIC 390 E2	LIC 603 M4	LIC 356 E4	LIC 397 B5
LA231 U8	LIC 287	E3	LIC 584 A4	LIC 583 B2	LIC 7220F50	LIC 377D55	F3	LIC 391 E2	LIC 604 M4	LIC 357 E4	LIC 398 B5
LA231 V8	LIC 288	E3	LIC 585 A4	LIC 584 B2	LIC 7220F51	LIC 377D56	F3	LIC 392 E2	LIC 605 M4	LIC 358 E4	LIC 399 B5
LA231 W8	LIC 289	E3	LIC 586 A4	LIC 585 B2	LIC 7220F52	LIC 377D57	F3	LIC 393 E2	LIC 606 M4	LIC 359 E4	LIC 400 B5
LA231 X8	LIC 290	E3	LIC 587 A4	LIC 586 B2	LIC 7220F53	LIC 377D58	F3	LIC 394 E2	LIC 607 M4	LIC 360 E4	LIC 401 B5
LA231 Y8	LIC 291	E3	LIC 588 A4	LIC 587 B2	LIC 7220F54	LIC 377D59	F3	LIC 395 E2	LIC 608 M4	LIC 361 E4	LIC 402 B5
LA231 Z8	LIC 292	E3	LIC 589 A4	LIC 588 B2	LIC 7220F55	LIC 377D60	F3	LIC 396 E2	LIC 609 M4	LIC 362 E4	LIC 403 B5
LA231 B9	LIC 293	E3	LIC 590 A4	LIC 589 B2	LIC 72						

2. MAIN P.C.BOARD



MECHANICAL & ACCESSORIES PARTS LIST

SET & PACKAGING PARTS (FOR PAGES 2-2 TO 2-3)						
261	9965 000 25780	RUBBER FOOT	26	9965 000 25640	MOTOR ASSEMBLY, LD - (DI) D37	
264	9965 000 25779	FAN, DC 60X60X15MM	26	9965 000 28836	MOTOR ASSEMBLY	
265	9965 000 25546	HOLDER, POWER CORD	27	9965 000 25641	GEAR, WHEEL OTHER - D37	
266	9965 000 28797	BRACKET, MOUNTING	28	9965 000 25642	REEL, T OTHER - D37	
274	9965 000 26264	PLATE, AV GND	29	9965 000 25643	ARM ASSEMBLY, PINCH - D37 (CHON	
283	9965 000 25773	VCR DOOR	29	9965 000 28837	ARM ASSEMBLY	
284	4822 492 42785	SPRING DOOR	29	9965 000 28838	ARM ASSEMBLY	
285	9965 000 25774	DVD DOOR	31	9965 000 25644	SPRING, COIL TENSION - D37	
286	9965 000 25776	SPRING, DVD DOOR	51	9965 000 19315	CAPSTAN	
300	9965 000 28798	△ POWER CORD	01 02 19	52	9965 000 25645	MOTOR, CAPSTAN F2QVB66 SANKYO FO
300	9965 000 26265	△ POWER CORD	05	52	9965 000 25645	MOTOR, CAPSTAN F2QVB66 SANKYO FO
806	9965 000 25781	RF CABLE	52	9965 000 25645	MOTOR, CAPSTAN F2QVB66 SANKYO FO	
811	9965 000 25782	VIDEO CABLE YEL	52A	9965 000 25660	SUPPORTER, CAPSTAN OTHER - D37	
812	9965 000 25783	AUDIO CABLE WHITE/RED	55	9965 000 25646	GEAR, DRIVE OTHER - D37	
821	9965 000 26260	SCART TO SCART 21 PIN DT_HY_HI	56	9965 000 25647	GEAR, CAM OTHER - D37	
826	9965 000 28799	FILTER (CIRC), EMC	58	9965 000 25648	BRAKE ASSEMBLY, CAPSTAN - D37	
900	9965 000 28800	REMOTE CONTROL DVDR3320V	60	9965 000 25649	LEVER, FIR OTHER - D37	
A00	9965 000 28801	VCR DECK MECH ASSEMBLY	61	9965 000 25650	CLUTCH ASSEMBLY, D37(M)	
A43	9965 000 28802	FRONT PANEL ASSEMBLY	01 02	64	9965 000 25651	GEAR, SECTOR OTHER - D37
A43	9965 000 28846	FRONT PANEL ASSEMBLY	05	76	9965 000 25652	LEVER, SPRING OTHER - D37
A43	9965 000 28849	FRONT PANEL ASSEMBLY	19	77	9965 000 25653	PLATE, SLIDER OTHER - D37
A60	9965 000 28803	RL-05C LOADER (DVDR) MODULE		78	9965 000 25654	LEVER, TENSION OTHER - D37
				79	9965 000 25655	BASE, TENSION OTHER - D37
				80	9965 000 25656	LEVER, BRAKE OTHER - D37
				100	9965 000 25657	PLATE ASSEMBLY, TOP - D37
VCR MECHANISM PARTS (FOR PAGES 4-28 TO 4-30)						
3	9965 000 25625	HOLDER, FPCB(6CH) - D37C MO				
4	9965 000 25626	CAP, FPCB - D37C MOLD	109	9965 000 25658	OPENER, DOOR OTHER - D37	
8	9965 000 25627	CABLE, FLAT 7PIN 17CM	405	9965 000 28839	SCREW MACHINE, PAN HEAD	
9	9965 000 25628	ARM, T-UP OTHER - D37	406	4822 502 21655	SCREW MACHINE, PAN HEAD SPR W	
11	9965 000 25629	ARM ASSEMBLY, TENSION - D37	409	9965 000 19341	+ 1 D2.6 L5.0 SWRCH18AFZY TAP	
			410	9965 000 19342	D2.6 L6.8 MSWR3/FZY	
12	9965 000 25630	BASE ASSEMBLY, P2 -D37				
12	9965 000 28830	BASE ASSEMBLY	517	9965 000 28840	WASHER, DRAWING	
13	9965 000 25631	BASE ASSEMBLY, P3 - D37	517	9965 000 28841	WASHER, DRAWING	
13	9965 000 28831	BASE ASSEMBLY	518	9965 000 28842	WASHER, DRAWING	
14	9965 000 25632	BASE ASSEMBLY, P4 - D37	A01	9965 000 25617	DRUM(CIRC) ASSEMBLY, D37-6CH PAL	
			A11	9965 000 25619	GEAR ASSEMBLY, P3 - D37	
15	9965 000 25633	OPENER, LID OTHER - D37				
16	9965 000 28832	BASE ASSEMBLY	A12	9965 000 25620	GEAR ASSEMBLY, P2 - D37	
16	9965 000 28833	BASE ASSEMBLY	A21	9965 000 25621	HOLDER ASSEMBLY, CST - D37	
17	9965 000 28834	REEL	A22	9965 000 25622	GEAR ASSEMBLY, RACK F/L - D37	
17	9965 000 25635	REEL, S OTHER - D37	A23	9965 000 25623	ARM ASSEMBLY, F/L - D37	
			A24	9965 000 25624	LEVER ASSEMBLY, SWITCH(C) - D37	
21	9965 000 25636	BRAKE ASSEMBLY, T - D37				
22	9965 000 25637	HEAD(CIRC), ST FE HEAD FOR D37				
22	9965 000 28839	HEAD(CIRC)	Note:	* ALTERNATIVE PART CODE		
23	9965 000 25638	BASE, LOADING OTHER - D37			Only the parts mentioned in this list are normal service spare parts.	
24	9965 000 25639	ARM ASSEMBLY, IDLER(H)				

ELECTRICAL PARTS LIST

VCR MAIN BOARD ASSEMBLY						
			L503	9965 000 18641	100M K 6X6 L5 TP	
			L504	9965 000 18646	10M K 6X6 L5 TP	
			L505	9965 000 25799	INDUCTOR 12UH	
			L506	9965 000 25591	INDUCTOR 1UH , CHIP2012	
			L507	9965 000 25591	INDUCTOR 1UH , CHIP2012	
			L701	9965 000 18641	100M K 6X6 L5 TP	
			L704	9965 000 18646	10M K 6X6 L5 TP	
			L705	9965 000 18646	10M K 6X6 L5 TP	
			L7M1	9965 000 18646	10M K 6X6 L5 TP	
			L7V1	9965 000 18641	100M K 6X6 L5 TP	
			L801	9965 000 18641	100M K 6X6 L5 TP	
			L802	9965 000 18641	100M K 6X6 L5 TP	
			L901	9965 000 19456	10UH , CHIP2012 CERATECH R/TP	
			L902	9965 000 19456	10UH , CHIP2012 CERATECH R/TP	
			L903	9965 000 19456	10UH , CHIP2012 CERATECH R/TP	
			L904	9965 000 19456	10UH , CHIP2012 CERATECH R/TP	
			L905	9965 000 19456	10UH , CHIP2012 CERATECH R/TP	
			L906	9965 000 19456	10UH , CHIP2012 CERATECH R/TP	
			L907	9965 000 19456	10UH , CHIP2012 CERATECH R/TP	
			L908	9965 000 19456	10UH , CHIP2012 CERATECH R/TP	
			L909	9965 000 19456	10UH , CHIP2012 CERATECH R/TP	
			L910	9965 000 19456	10UH , CHIP2012 CERATECH R/TP	
			L911	9965 000 18646	10M K 6X6 L5 TP	
			L912	9965 000 25591	INDUCTOR 1UH , CHIP2012	
			L913	9965 000 25591	INDUCTOR 1UH , CHIP2012	
DICDES						
D8C1	9965 000 18686	RL104 R. TP GULF SEMICONDUCTOR				
D8C2	9965 000 18686	RL104 R. TP GULF SEMICONDUCTOR				
D201	9965 000 18565	RL104F 400V 1A				/19 only
TU701	9965 000 25812	TUNER UNIT TADM-M901D	01/20/05 only			
TU701	9965 000 25672	TUNER UNIT TADM-S101D	/19 only			
X301	9965 000 28814	HC-49/SM BUBANG 4.433619MHZ /				
X501	9965 000 25815	XTAL RESONATOR 14.31818MHZ				
X502	9965 000 25611	XTAL 32.768KHZ				
X751	9965 000 18660	49U BUBANG 1843200HZ 30PPM 16				
CAPACITORS						
C313	9965 000 28804	0.022UF D 100V 5% PE TPS				
RESISTORS						
COILS & FILTERS						
L201	9965 000 25797	INDUCTOR 10UH 10%	02/19 only			
L300	9965 000 28805	39UH 5% 4X5 TRS				
L302	9965 000 28806	100UH 5% TP 4 X 5 TRS				
L303	9965 000 28807	150UH 5% 4X5 TRS				
L305	9965 000 28805	39UH 5% 4X5 TRS				
L306	9965 000 28806	100UH 5% TP 4 X 5 TRS				
L307	9965 000 28808	12UH 10% R 3X5 TRS				
L308	9965 000 28806	100UH 5% TP 4 X 5 TRS				
L311	9965 000 28806	100UH 5% TP 4 X 5 TRS				
ZD904	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD905	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD906	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD907	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD908	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD909	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD910	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD911	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD912	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD913	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD914	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD915	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD916	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD917	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD918	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD919	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD920	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD921	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD922	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD923	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				
ZD924	9965 000 25616	ZENER Z02W7.5V KEC R/TP SOT23 25				

ELECTRICAL PARTS LIST

TRANSISTORS		
Q301	9965 000 18651	2SC5344Y TP
Q301	9965 000 25599	KTC3203 KEC TP TO92 50V 150MA
Q302	9965 000 25598	STB1277LY-AT TP TO-92 AUK KOREA
Q302	9965 000 25597	KSA928A-Y.TO-92L TP SAMSUNG TO
Q302	9965 000 25810	KTA1273-TP-Y (KTA966A)KEC
Q303	9965 000 28811	DTC124EX TP ROHM KOREA SOT23 3
Q303	9965 000 28813	AUK KOREA SRC1203S R/TP SOT23
Q303	9965 000 16624	CHIP TRANSISTOR KRC103S RTK
Q305	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q306	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q307	9965 000 26162	KRA103S-T1
Q310	9965 000 16622	CHIP TRANSISTOR KTA1504GR-RTK
Q501	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q503	9965 000 25810	KTA1273-TP-Y (KTA966A)KEC
Q504	9965 000 16622	CHIP TRANSISTOR KTA1504GR-RTK
Q505	9965 000 16622	CHIP TRANSISTOR KTA1504GR-RTK
Q506	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q514	9965 000 16624	CHIP TRANSISTOR KRC103S RTK
Q515	9965 000 16624	CHIP TRANSISTOR KRC103S RTK
Q701	9965 000 16624	CHIP TRANSISTOR KRC103S RTK
Q704	9965 000 25810	KTA1273-TP-Y (KTA966A)KEC
Q7S1	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC <small>19 only</small>
Q7S2	9965 000 16624	CHIP TRANSISTOR KRC103S RTK <small>19 only</small>
Q8C1	9965 000 16622	CHIP TRANSISTOR KTA1504GR-RTK
Q901	9965 000 16622	CHIP TRANSISTOR KTA1504GR-RTK
Q902	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q903	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q904	9965 000 16624	CHIP TRANSISTOR KRC103S RTK
Q905	9965 000 16622	CHIP TRANSISTOR KTA1504GR-RTK
Q906	9965 000 16624	CHIP TRANSISTOR KRC103S RTK
Q907	9965 000 16622	CHIP TRANSISTOR KTA1504GR-RTK
Q910	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q911	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q912	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
INTEGRATED CIRCUITS		
IC201	9965 000 25670	LA70100M-TRM SANYO <small>02/19 only</small>
IC301	9965 000 28809	HA118725AF-E PB-FREE HITACHI 1
IC501	9965 000 28810	MN101D101F LJ MATSUSHITA 100PI
IC503	9965 000 18632	CAT24W16P 8P DIP ST 16K SERIAL
IC504	9965 000 18633	KIA7031P 3P 3.1V RESET(TAPING)
IC505	9965 000 18634	KIA7042P
IC751	9965 000 14760	AUD UP MSP3417G-OG-B8-V3
IC7V1	9965 000 25582	SDA5650X GEG MICRONAS 20PIN SO
IC801	9352 631 46557	IC SM TDA9605H/N2
IC802	9965 000 25583	MM1443XJBE MITSUMI 34PIN SSOP
IC901	9965 000 18573	MM1623XFBE MITSUMI 28PIN SOP R

Note: * ALTERNATIVE PART CODE

Only the parts mentioned in this list are normal service spare parts.

FRONT JACK PC BOARD**MISCELLANEOUS**

JK761	9965 000 25958	S-VIDEO SOCKET
JK762	9965 000 26261	CINCH SOCKET WHITE
JK763	9965 000 26262	CINCH SOCKET RED
JK764	9965 000 26263	CINCH SOCKET YELLOW
JK765	9965 000 28829	DV-IN SOCKET

COILS & FILTERS

F701	9965 000 18585	BEAD CORE BFS3550R2FD8,R T/P
F702	9965 000 18585	BEAD CORE BFS3550R2FD8,R T/P
F703	9965 000 18585	BEAD CORE BFS3550R2FD8,R T/P
F704	9965 000 18585	BEAD CORE BFS3550R2FD8,R T/P
L701	9965 000 18585	BEAD CORE BFS3550R2FD8,R T/P
L702	9965 000 18585	BEAD CORE BFS3550R2FD8,R T/P
L703	9965 000 18585	BEAD CORE BFS3550R2FD8,R T/P
L704	9965 000 18648	100M K 2.3X3.4 L5 TP
L705	9965 000 18648	100M K 2.3X3.4 L5 TP

TIMER (DISPLAY) + KEY PC BOARDS**MISCELLANEOUS**

DIG601	9965 000 25949	FTD DISPLAY HNV-12SM79T
P6M01	9965 000 25953	CONN. PLUG TUC-P12X-B1 12P
P6M03	9965 000 25954	CONN. PLUG TUC-P05X-B1 5PIN
RC601	9965 000 25955	REM RECEIVER TSOP2438SB1
RC601	9965 000 25956	REM RECEIVER TSOP1838RF1
SW601	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW601	9965 000 25957	TACT SWITCH SKQNQED 12V 50MA
SW602	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW602	9965 000 25957	TACT SWITCH SKQNQED 12V 50MA
SW603	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW603	9965 000 25957	TACT SWITCH SKQNQED 12V 50MA
SW604	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW604	9965 000 25957	TACT SWITCH SKQNQED 12V 50MA
SW605	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW605	9965 000 25957	TACT SWITCH SKQNQED 12V 50MA
SW606	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW606	9965 000 25957	TACT SWITCH SKQNQED 12V 50MA
SW607	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW607	9965 000 25957	TACT SWITCH SKQNQED 12V 50MA
SW608	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW608	9965 000 19257	TACT SWITCH SKQNQED 12V 50MA
SW610	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW610	9965 000 25957	TACT SWITCH SKQNQED 12V 50MA
SW611	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW611	9965 000 25957	TACT SWITCH SKQNQED 12V 50MA
SW612	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW612	9965 000 25957	TACT SWITCH SKQNQED 12V 50MA
SW613	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-
SW613	9965 000 25957	TACT SWITCH SKQNQED 12V 50MA
SW614	9965 000 19257	THVV502GAA POSTECH DC 12 V 5-

ELECTRICAL PARTS LIST**MISCELLANEOUS**

SW614	9965 000 25957	TACT SWITCH SKQNQED 12V 50MA
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VDR (DIGITAL) BOARD**MISCELLANEOUS**

CON401	9965 000 25920	FLEX SOCKET 40PIN VERT
PN301	9965 000 25941	CONN SOCKET 15PIN VERT
PN302	9965 000 25941	CONN SOCKET 15PIN VERT
PN303	9965 000 25942	FLEX SOCKET 15PIN VERT
PN304	9965 000 25943	FLEX SOCKET 30PIN VERT

CAPACITORS

C602	9965 000 28828	TANTALUM CAP 220UF 10V 20%
C602	9965 000 28827	TANTALUM CAP 220UF 10V 20%

RESISTORS

R605	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT
R607	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT
R608	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT
R609	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT

COIL & FILTERS

L601	9965 000 19251	820UH 5% 4X5 TR5
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DIODES

LED601	9965 000 25951	SA3417 TP RED
LED602	9965 000 25952	SY3517 BK AMBER
LED603	9965 000 25952	SY3517 BK AMBER
LED604	9965 000 25952	SY3517 BK AMBER
LED605	9965 000 25952	SY3517 BK AMBER
LED606	9965 000 26158	LED DL-11S2RNS RED
LED607	9965 000 25951	SA3417 TP RED
LED607	9965 000 26158	LED DL-11S2RNS RED

TRANSISTORS & INTEGRATED CIRCUITS

IC601	9965 000 25950	PT6315 PTC 44 LQFP TRAY VFD DR
Q601	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
Q604	9965 000 25809	CHIP KTC3875S-GR-T1(ALG) KEC
C403	9965 000 25912	ELCAP 100UF 16V
C504	9965 000 25913	ELCAP 100UF 16V

Note: * ALTERNATIVE PART CODE

Only the parts mentioned in this list are normal service spare parts.

C307	9965 000 25914	ELCAP 22UF 16V
C508	9965 000 25915	ELCAP 10UF 16V
C509	9965 000 25915	ELCAP 10UF 16V
C510	9965 000 25915	ELCAP 10UF 16V
C519	9965 000 25916	TANTALUM CAP 10UF 16V 20%

C535	9965 000 25916	TANTALUM CAP 10UF 16V 20%
C537	9965 000 25916	TANTALUM CAP 10UF 16V 20%
C628	9965 000 25917	TANTALUM CAP 1UF 16V
C629	9965 000 25917	TANTALUM CAP 1UF 16V
C630	9965 000 25912	TANTALUM CAP 22UF 10V

C803	9965 000 25918	ELCAP 47UF 16V
C805	9965 000 25914	ELCAP 22UF 16V
C808	9965 000 25914	ELCAP 22UF 16V
C810	9965 000 25914	ELCAP 22UF 16V
C813	9965 000 25915	ELCAP 10UF 16V

C815	9965 000 25918	ELCAP 47UF 16V
C820	9965 000 25915	ELCAP 10UF 16V
C822	9965 000 25915	ELCAP 10UF 16V

ELECTRICAL PARTS LIST

CAPACITORS

C831	9965 000 25915	ELCAP 10UF 16V
C833	9965 000 25918	ELCAP 47UF 16V
C835	9965 000 28815	3.3UF 50V 20% 85STD (CYL) R/TP
C836	9965 000 25915	ELCAP 10UF 16V
C837	9965 000 25918	ELCAP 47UF 16V
C840	9965 000 25914	ELCAP 22UF 16V
C841	9965 000 25914	ELCAP 22UF 16V
C845	9965 000 25914	ELCAP 22UF 16V
C847	9965 000 25918	ELCAP 47UF 16V
C849	9965 000 25918	ELCAP 47UF 16V
C899	9965 000 25915	ELCAP 10UF 16V
C1201	9965 000 25843	TANTALUM CAP 10UF 6.3V 20%
C1208	9965 000 25843	TANTALUM CAP 10UF 6.3V 20%
C1262	9965 000 25843	TANTALUM CAP 10UF 6.3V 20%
C1272	9965 000 25843	TANTALUM CAP 10UF 6.3V 20%
C1282	9965 000 25910	TANTALUM CAP 330U 6.3V 20%
C1282	9965 000 25909	TANTALUM CAP 330U F6.3V 20%
C1287	9965 000 25910	TANTALUM CAP 330U 6.3V 20%
C1287	9965 000 25909	TANTALUM CAP 330U F6.3V 20%
C1288	9965 000 25910	TANTALUM CAP 330U 6.3V 20%
C1288	9965 000 25909	TANTALUM CAP 330U F6.3V 20%
C1289	9965 000 25910	TANTALUM CAP 330U 6.3V 20%
C1289	9965 000 25909	TANTALUM CAP 330U F6.3V 20%
C1291	9965 000 25839	TANTALUM CAP 22UF 16V 20%
C1293	9965 000 25909	TANTALUM CAP 330U F6.3V 20%
C1293	9965 000 25910	TANTALUM CAP 330U 6.3V 20%
C1295	9965 000 25910	TANTALUM CAP 330U 6.3V 20%
C1295	9965 000 25909	TANTALUM CAP 330U F6.3V 20%
CS108	9965 000 25916	TANTALUM CAP 10UF 16V 20%
CS109	9965 000 25916	TANTALUM CAP 10UF 16V 20%
CS110	9965 000 25916	TANTALUM CAP 10UF 16V 20%

RESISTORS

R307	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT
R308	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT
R506	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT

COILS & FILTERS

FB801	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB802	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB803	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB804	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB805	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB821	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB822	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB823	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB824	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB825	9965 000 18575	HB-1M2012-102JT CERATECH TP
FB826	9965 000 18575	HB-1M2012-102JT CERATECH TP
FL503	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT
FL504	9965 000 25921	INDUCTOR, CHIP HB-1M1608-102JT

ELECTRICAL PARTS LIST

INTEGRATED CIRCUITS

IC406	9965 000 25930	74LVT16373A DGG PHILIPS 48PIN
IC409	9965 000 25931	74LVC04APW PHILIPS 14PIN TSSOP
IC501	9965 000 25932	NJM2274R JRC VSP8 R/TP LOW POW
IC502	9965 000 28820	L214 LSI LOGIC 80PIN,TQFP TRA
IC601	9965 000 25935	TSB41AB1PHP TEXAS INSTRUMENT 4
IC802	9965 000 28822	CS4351-CZZR CIRRUS LOGIC 20PIN
IC803	9965 000 25936	MC33202DR2 ON SEMI 8PIN SOP R/
IC804	9965 000 28823	CS5340-CZZR CIRRUS LOGIC 16PIN
IC805	9965 000 25936	MC33202DR2 ON SEMI 8PIN SOP R/
IC1201	9965 000 28817	G2995F1UF GMT 8PIN,SOP-8L R/TP
IC1202	9965 000 25924	HYB25D256160CE-6 INFINEON 66P!
IC1202	9965 000 25925	HY5DU561622C HYNIX 66PIN,TSOP
IC1202	9965 000 28818	HY5DU561622DT-J HYNIX 66PIN,TS
IC1203	9965 000 25924	HYB25D256160CE-6 INFINEON 66P!
IC1203	9965 000 28818	HY5DU561622DT-J HYNIX 66PIN,TS
IC5101	9965 000 28821	SAA7120H PHILIPS 44 QFP TRAY V

Note: * ALTERNATIVE PART CODE

Only the parts mentioned in this list are normal service spare parts.

POWER (SMPS) BOARD MODULE

MISCELLANEOUS

BC101	9965 000 25876	BEAD CORE BFD3514R2F,R T,P
BC102	9965 000 25876	BEAD CORE BFD3514R2F,R T,P
BD101	9965 000 25877	GBL08 VISHAY BK GBL 800V 4A 20
F101	4822 070 31602	△ FUSE 1.6A 250V 2X20
PW101	9965 000 25897	CONN SOCKET 2PIN, AC IN
T101	9965 000 25901	△ EER2828 COMPLEX MODEL SOOJUNG
T102	9965 000 25901	△ EER2828 COMPLEX MODEL SOOJUNG
TH01	9965 000 25902	THERMISTOR, PTC 4.0ΩHM 15
V101	9965 000 19235	△ SVC681D-10A SAMHWA 4.0 CUT

CAPACITORS

C101	9965 000 28825	△ MPX104K 275VAC BULK ETR
C101*	9965 000 25878	△ PCX2 275V 0.1UF,M (PILKO)
C101*	9965 000 18666	△ 435D SUNIL ELECTRONICS 0.1UF/2
C102	9965 000 28825	△ MPX104K 275VAC BULK ETR
C102*	9965 000 25878	△ PCX2 275V 0.1UF,M (PILKO)
C102*	9965 000 18666	△ 435D SUNIL ELECTRONICS 0.1UF/2
C103	9965 000 25879	ELCAP 150UF 400V 20%
C105	9965 000 18669	0.01UF D 630V K PE NI TP
C106	9965 000 25551	CAP HIGH-VOL 68PF 1KV
C110	9965 000 18672	△ 1000PF 400V M E(ZSU) R
C111	9965 000 18672	△ 1000PF 400V M E(ZSU) R
C115	9965 000 18669	0.01UF D 630V K PE NI TP
C116	9965 000 25551	CAP HIGH-VOL 68PF 1KV
C122	4822 124 40201	1000UF20% 16V
C123	9965 000 25552	ELCAP 2200UF 16V 20% BK7.5 FL
C125	4822 124 40184	1000UF20% 10V
C126	9965 000 25552	ELCAP 2200UF 16V 20% BK7.5 FL
C129	9965 000 25552	ELCAP 2200UF 16V 20% BK7.5 FL
C139	9965 000 25880	1000UF KMG 25V 20% BULK FL

RESISTORS

R100	9965 000 19226	1.5M OHM 1/2 W 5.00% MF10
R103	9965 000 19228	56K OHM 2 W 5.00% TR
R112	9965 000 19228	56K OHM 2 W 5.00% TR
R115	9965 000 19228	56K OHM 2 W 5.00% TR
R155	9965 000 25899	56 OHM 1 W 5.00% TR

COILS & FILTERS

L102	9965 000 25895	△ SQ2626 SAMWAH TECOM BK SQ2424
L121	9965 000 25588	CHOKE COIL TDK 22UH(=633-088G
L121*	9965 000 19212	CHOCK(22MH) 5MM TOKO TP
L122	9965 000 25588	CHOKE COIL TDK 22UH(=633-088G
L122*	9965 000 19212	CHOCK(22MH) 5MM TOKO TP
L123	9965 000 25896	BAR CHOKE COIL 2 PIN 10 UHCCAR
L125	9965 000 18641	100M K 6X6 L5 TP
L127	9965 000 19212	CHOCK(22MH) 5MM TOKO TP

DIODES

D101	9965 000 18682	ERA22-10 KFLB,TP ,R T/P, FUJI
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ELECTRICAL PARTS LIST

DIODES

D102	9965 000 18683	EU01W(R-FORM) TP SANKEN	IC106	4822 209 12767	KIA431
D103	9965 000 18682	ERA22-10 KFLB,TP ,R T/P,FUJI	IC151	9965 000 25887	KIA278R05PI-CU KEC 4PIN,TO220I
D104	9965 000 18683	EU01W(R-FORM) TP SANKEN	IC151 *	9965 000 25886	KA278R05TSTU FAIRCHILD 4PIN,TO
D121	9965 000 25882	SB360-24A GULF BK D0201AD 60V	IC152	9965 000 25888	KIA78R25PICU KEC 4PIN,TO-220IS
D121 *	9965 000 25881	D3S6M SHINDENGEN BK AX14 60V 1	IC152 *	9965 000 25889	G9125 GMT 4PIN,TO 220F-4L ST 1
D122	9965 000 18687	B10A45V1 BK KEC TO220 45V 10A	IC154	9965 000 25890	G9233 GMT 4PIN,TO 220F-4L ST
D123	9965 000 18687	B10A45V1 BK KEC TO220 45V 10A	IC154 *	9965 000 25891	KA278R33TSTU FAIRCHILD 4PIN TO
D124	9965 000 25883	B5A60V1 .4MM CUTTING KEC ST T	IC154 *	9965 000 19210	KIA278R33PI-CU KEC 4PIN TO-220
D124 *	9965 000 28826	FSQ05A60 .4MM CUTTING NIHON INT	IC157	9965 000 25893	KIA278R12PI-CU KEC 4PIN,TO220I
D125	9965 000 18684	HER302 BK RECTRON DO201AD 100V	IC157 *	9965 000 25892	KA278R12TSTU FAIRCHILD 4P TO-2
D125 *	9965 000 25554	DIODE RU4YX BK	IC160	9965 000 25894	PQ070VK02LZH SHARP 5PIN,DIP ST
D126	9965 000 18684	HER302 BK RECTRON DO201AD 100V			
D126 *	9965 000 25554	DIODE RU4YX BK			
D127	9965 000 18565	RL104F TP RECTRON NON 400V 1A			
D128	9965 000 18683	EU01W(R-FORM) TP SANKEN			
D129	9965 000 18565	RL104F TP RECTRON NON 400V 1A			
D130	9965 000 18683	EU01W(R-FORM) TP SANKEN			
D132	9965 000 18686	RL104 R. TP GULF SEMICONDUCTOR			
D133	9965 000 18686	RL104 R. TP GULF SEMICONDUCTOR			
D134	4822 130 32778	ISS133			
D151	9965 000 18686	RL104 R. TP GULF SEMICONDUCTOR			
D155	9965 000 18686	RL104 R. TP GULF SEMICONDUCTOR			
ZD101	9965 000 25559	ZENER UZ-22BSB 26MM			
ZD101 *	9965 000 25903	MTZ22B T-77 TP ROHM			
ZD102	9965 000 25559	ZENER UZ-22BSB 26MM			
ZD102 *	9965 000 25903	MTZ22B T-77 TP ROHM			
ZD151	9965 000 19243	UZ-3.3BSB 26MM TP PYUNG CHANG			
ZD151 *	9965 000 25906	MTZ3.3B,T-77(26MMTP) TP ROHM			
ZD151 *	9965 000 25905	MTZ3.3B TP ROHM-K D034 0.5W 3			
ZD151 *	9965 000 25904	GDZ3.3B TP GRANDE DO34 0.5W 3			
ZD152	9965 000 25613	ZENER UZ-13BSA 26MM			
ZD153	9965 000 19244	UZ-30BSC 26MM PYUNG CHANG TP D			

Note: * Alternative parts
Only the parts mentioned in this list are normal service spare parts.

TRANSISTORS

Q120	4822 130 63857	KTD1414
Q121	9965 000 19214	SRA2203 TP AUK TO92 22K,22K
Q122	9965 000 19224	2SC5343-L TP AUK TO92
Q122 *	4822 130 41319	2SC1815BL
Q123	9965 000 19225	KTA1268-BL TP KEC
Q124	9965 000 25810	KTA1273-TP-Y (KTA966A)KEC
Q125	4822 130 41319	2SC1815BL
Q125 *	9965 000 19224	2SC5343-L TP AUK TO92
Q126	4822 130 41306	2SC1815GR

INTEGRATED CIRCUITS

IC101	9965 000 25555	IC FSDL0365RN 8PIN,DIP
IC102	9965 000 18689	△ LTV-817B,PHOTO COUPLER(LITEON)
IC102 *	9965 000 25884	△ PC123YN2 SHARP PHOTOCOUPLER
IC103	4822 209 12767	KIA431
IC104	9965 000 25555	IC FSDL0365RN 8PIN,DIP
IC105	9965 000 18689	△ LTV-817B,PHOTO COUPLER(LITEON)
IC105 *	9965 000 25884	△ PC123YN2 SHARP PHOTOCOUPLER